Aug. 31, 1948. P. J. SPERZEL 2,448,330

HINGE CONSTRUCTION FOR TOILET SEATS

Filed Sept. 20, 1945

Fig. 1

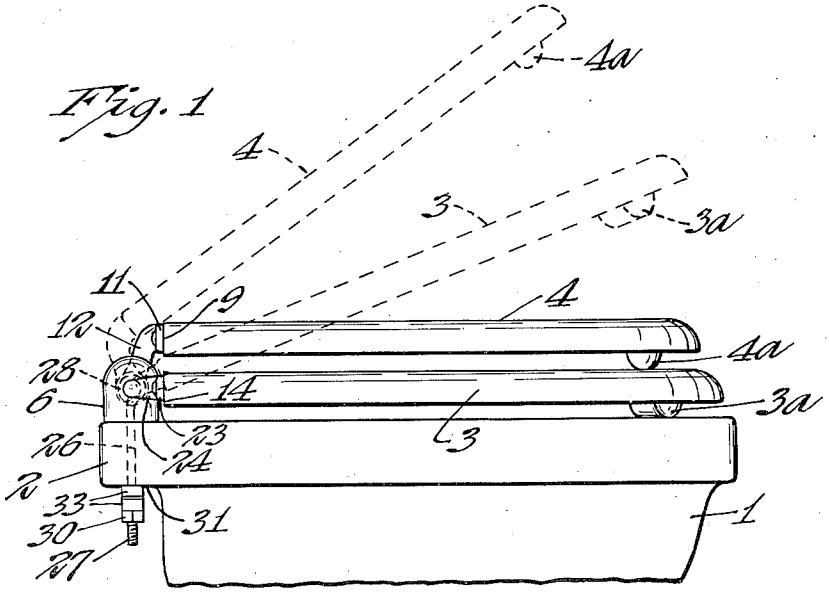


Fig. 2

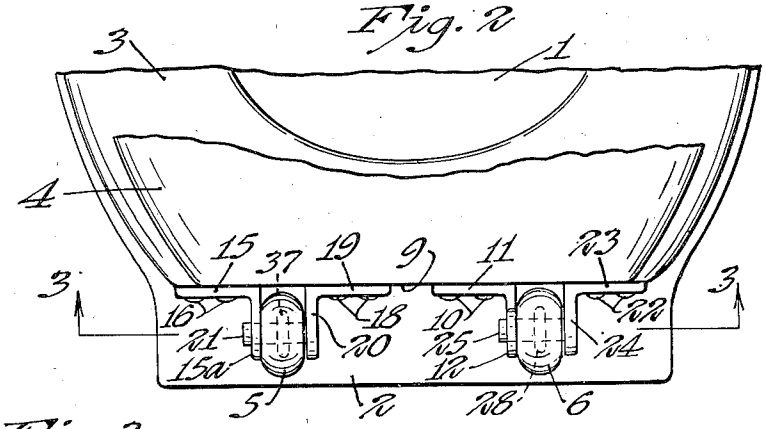
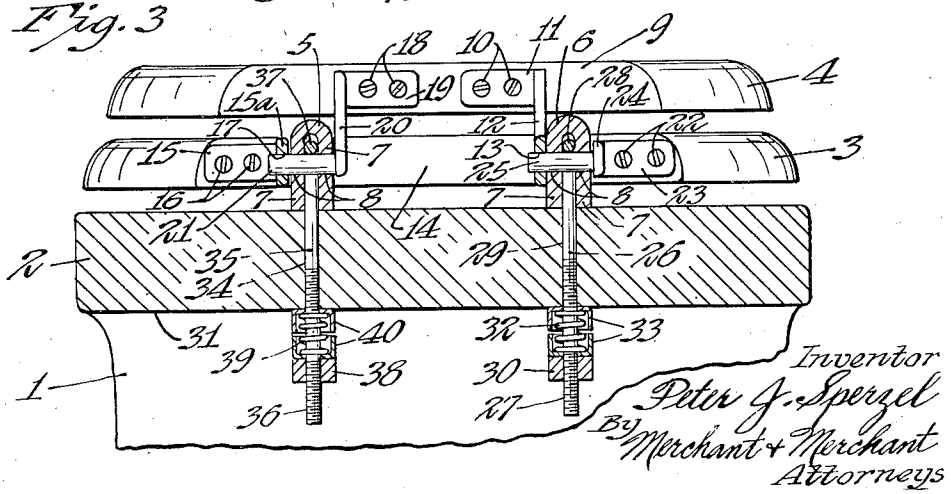


Fig. 3



Inventor
Peter J. Sperzel
By Merchant & Merchant
Attorneys

Patented Aug. 31, 1948

2,448,330

UNITED STATES PATENT OFFICE

2,448,330

HINGE CONSTRUCTION FOR TOILET SEATS

Peter J. Sperzel, Minneapolis, Minn., assignor to Sperzel Company, Minneapolis, Minn., a corporation of Minnesota

Application September 20, 1945, Serial No. 617,499

9 Claims. (Cl. 4—236)

1

My invention relates to a novel friction hinge construction for the conventional toilet bowl, seat, and cover combination, and has for its object a novel arrangement of parts whereby frictional braking action applied to but two compound hinges will control the pivotal movements of both the seat and the cover.

Another object of my invention is the provision of such a novel hinge construction with a minimum of parts and at a minimum of cost.

Another object of my invention is the provision of a hinge construction for the above purposes which may be readily applied to the conventional toilet bowl by even an unskilled layman.

Another object of my invention is the provision of such a construction which may be readily adjusted by a layman after installation and wear, whereby the frictional braking action on the cover and seat respectively may be maintained as desired at all times.

Still further objects of my invention are to provide a novel hinge construction for toilet seat and cover combination which is durable, foolproof, and completely sanitary.

The above and still further objects of my invention will become obvious from the following detailed description and the attached drawings.

Referring to the drawings, in which like characters indicate like parts throughout the several views:

Fig. 1 is a side elevation of my novel hinge construction, mounted on a conventional toilet bowl, and a portion of which is broken away;

Fig. 2 is a top plan view, portions of the seat and cover being broken away; and

Fig. 3 is a vertical axial section taken on the line 3—3 of Fig. 2.

Referring with more particularity to the drawings, the numeral 1 indicates a conventional toilet bowl having a rearwardly projecting supporting shelf 2. Immediately overlying bowl 1 is a conventional seat 3 and overlying seat 3 is a cover 4. Seat 3 is shown as being provided with a pair of rubber bumpers 3a and the cover 4 with a single rubber bumper 4a. Shown as resting on shelf 2 and supported thereby are a pair of laterally spaced hinge brackets 5 and 6, each having spaced upwardly projecting walls 7 and aligned perforations 8.

Brackets 5 and 6 are shown as being in the form of caps for purposes of sanitation and protection of the parts therein, and may be made from plastic, metal, or any other desirable material. However, from a functional point of view, brackets 5 and 6 could just as well be open at their

2

upper ends and upwardly opening notches being substituted for perforations 8.

To the rear edge 9 of cover 4 is secured, by means of screws 10 or the like, a hinge bracket 11 having a depending arm 12, the bottom end of which is perforated at 13. Arm 12 is shown as terminating immediately adjacent bracket 6 and perforation 13 is in alignment with perforations 8.

To the rear edge 14 of seat 3 is secured a bracket 15 by means of screws or the like 16. Bracket 15 is provided with an outwardly projecting arm 15a which contains a perforation 17 adjacent its outer end. Arm 15a is shown as terminating immediately adjacent bracket 5 and perforation 17 is in alignment with perforations 8 of bracket 5.

Secured to the rear edge 9 of cover 4 by means of screws or the like 18 is a hinge bracket 19 having a depending arm 20 which terminates adjacent to the hinge bracket 5 opposite arm 15a. Projecting outwardly from the end of arm 20 and through perforations 8 of bracket 5 and perforation 17 of arm 15a is a hinge pin or pintle 21.

Secured to rear edge 14 of seat 9 by means of screws or the like 22 is a hinge bracket 23 having a rearwardly projecting arm 24 which terminates adjacent hinge bracket 6 opposite depending arm 12 secured to cover 4. Secured to the outer end of arm 24 is a hinge pin or pintle 25 which passes through the aligned perforations 8 in bracket 6 and perforation 13 in arm 12.

A clamping bolt 26 having a thread-equipped lower end 27 and an eye-equipped upper end 28 is shown as projecting downwardly through an opening 29 in shelf 2. It will be observed that the upper end of clamping bolt 26 extends upwardly between the spaced walls 7 of bracket 6 so that pintle pin 25 extends through the eye-equipped upper end 28 thereof. The threaded lower end 27 of clamping bolt 26 is provided with a tensioning nut or burr 30. Interposed between burr 30 and the under surface 31 of shelf 2 is a coil spring 32 which, for the purpose of protection and sanitation, is shown as being covered by a pair of matching moisture-proof cups 33.

Laterally spaced from clamping bolt 26 and passing downwardly through an opening 34 in shelf 2 is a clamping bolt 35, similar in all respects to the clamping bolt 26, and having a threaded lower end 36 and an eye-equipped upper end 37. The eye-equipped upper end 37 of clamping bolt 35 projects upwardly between the walls 7 of hinge bracket 5 so that pintle pin 21 extends therethrough. The threaded lower end 36 of clamping bolt 35 is provided with a tensioning nut or burr 38. Interposed between nut 38 and

the bottom edge 31 of shelf 2 is a coil spring 39 covered at least in part by matching cups 40.

From the above, it will be obvious that by the mere tightening of nut 30 on the threaded end 27 of shaft 26, the coil spring 32 will compress against the bottom edge of shelf 2, thereby applying tension to bolt 26 so as to force it down tightly against hinge pin 25, which is connected to seat 3. Pin 25 is thus forced tightly against the spaced walls 7 of hinge bracket 6, applying braking friction thereto. Because bracket 12 is pivoted freely on the outer end of pin 25, no braking action is applied to the cover by the tightening of nut 30.

Likewise, to apply frictional braking action to the cover 4, nut 38 is tightened on the screw-threaded lower end 36 of clamping bolt 35. It is again obvious that no braking action is applied to seat 3 by the tightening of nut 38 because the hinge bracket 15 is pivoted to the free outer end of pivot pin 21.

By this novel construction and arrangement of parts, any desired amount of braking friction can be applied to the pivotal connections of both the seat 3 and cover 4, so as to control their movements from a horizontal to a vertical position. Thus, by tightening nuts 30 and 38, such braking friction may be applied to the hinge or pivot pins 21 and 25 to hold the seat 3 and cover 4 against accidental movements, in the tilting position indicated by dotted lines in Fig. 1.

The benefits of this arrangement are obvious and numerous. For instance, on ships, trains, or planes, where the bowl is subjected to tilting movements, the desired amount of braking action may be applied to both the seat and cover so as to prevent either one or both from accidentally falling from a vertical to a horizontal position and thus interfering with the user or one cleaning the bowl.

While I have described a commercial form of my invention, it should be obvious that the same could be changed or modified without departing from the spirit of the attached claims.

What I claim is:

1. A friction hinge construction for pivotally connecting a toilet seat and cover to one another and an underlying toilet bowl, said friction hinge construction comprising cooperating hinge brackets having aligned apertures and carried one by the bowl and one by the seat, cooperating hinge brackets having aligned apertures and carried one by the bowl and the other by the cover, a hinge pin carried by the cover and extending through aligned apertures of the cooperating bowl and seat brackets, a hinge pin carried by the seat and extending through the aligned apertures of the cooperating bowl and cover brackets, and friction braking means applied to the opposite hinge pins, whereby the frictional braking action applied to one hinge pin will control pivotal movements of the seat and the frictional braking action applied to the other hinge pin will control pivotal movements of the cover.

2. A friction hinge construction for pivotally connecting a toilet seat and cover to one another and an underlying toilet bowl having a rearwardly projecting supporting shelf, said friction hinge construction comprising cooperating hinge brackets having aligned apertures and carried one by the bowl and one by the seat, cooperating hinge brackets having aligned apertures and carried one by the bowl and the other by the cover, a hinge pin carried by the cover and extending through aligned apertures of the cooperating bowl and seat brackets, a hinge pin carried by the seat and extending through the aligned apertures of the cooperating bowl and cover brackets, bolts extending through said supporting shelf and having hooked upper ends overlying said hinge pins, and tensioning devices on the lower ends of said bolts working against the underside of said supporting shelf, whereby the frictional engagement between said hinge pins and cooperating hinge brackets may be varied to control the pivotal movements of said seat and cover.

3. A friction hinge construction for pivotally connecting a toilet seat and cover to one another and an underlying toilet bowl having a rearwardly projecting supporting shelf, said friction hinge construction comprising cooperating hinge brackets having aligned apertures and carried one by the bowl and one by the seat, cooperating hinge brackets having aligned apertures and carried one by the bowl and the other by the cover, a hinge pin carried by the cover and extending through aligned apertures of the cooperating bowl and seat brackets, a hinge pin carried by the seat and extending through the aligned apertures of the cooperating bowl and cover brackets, clamping bolts extending loosely through said supporting shelf and having hooked upper ends overlying said hinge pins at points adjacent the hinge brackets carried by said bowl, adjusting devices on the lower ends of said bolts working against the underside of said supporting shelf, whereby the frictional engagement between said hinge pins and cooperating hinge brackets may be varied to control the pivotal movements of said seat and cover, and spring means interposed between said adjusting device and said supporting shelf.

4. A friction hinge construction for pivotally connecting a toilet seat and cover to one another and an underlying toilet bowl having a rearwardly projecting supporting shelf, said friction hinge construction comprising a pair of laterally spaced hinge brackets, each having spaced walls provided with aligned apertures and supported by and projecting upwardly from said shelf, apertured hinge brackets carried by the seat and cover respectively and positioned adjacent opposite bowl supported brackets with their apertures aligned with those of their respective cooperating bowl supported brackets, hinge pins carried by the cover and seat respectively and extending through the aligned apertures of opposite cooperating brackets, clamping bolts extending loosely through said supporting shelf and having hooked upper ends overlying said hinge pins intermediate the walls of each of said first mentioned hinge brackets, tensioning devices on the lower ends of said bolts working against the under side of said supporting shelf, whereby the frictional engagement between said hinge pins and said cooperating hinge brackets may be varied to control the pivotal movements of said seat and cover.

5. The structure defined in claim 4 in further combination with spring means interposed between said tensioning devices and said supporting shelf.

6. A friction hinge construction for pivotally connecting a toilet seat and cover to one another and an underlying toilet bowl, said friction hinge construction comprising spaced hinge brackets secured to the bowl, a hinge pintle carried by the seat and journalled for rotation in one of the said hinge brackets, a hinge pintle carried by the cover and journalled for rotation in the other of said spaced brackets, and friction brak-

ing means applied to the opposite pintles, whereby the frictional braking action applied to one pintle will control movements of the seat and the frictional braking action applied to the other of said pintles will control pivotal movements of the cover.

7. A friction hinge construction for independently connecting a toilet seat and cover to one another and to an underlying toilet bowl, said friction hinge construction comprising coaxial hinge pintles located to the rear of the seat and cover and adapted to be journalled to the toilet bowl, the seat being mounted fast on one of said pintles and the cover being mounted fast on the other thereof, and independent friction-braking means applied one to each of said hinge pintles, whereby the frictional braking action applied to one hinge pintle by its respective braking means will control pivotal movements of the seat and frictional braking action applied to the other hinge pintle by its respective braking means will control pivotal movements of the cover.

8. In combination with a toilet bowl, coaxial hinge pintles horizontally disposed at the upper rear portion of and journalled to the toilet bowl, a toilet seat having its rear portion mounted fast on one of the hinge pintles, a toilet cover having its rear portion mounted fast on the other of said hinge pintles, and independent friction braking means applied one to each of said hinge pintles,

whereby the frictional braking action applied to one hinge pintle by its respective braking means will control pivotal movements of the seat and frictional braking action applied to the other hinge pintle by its respective braking means will control pivotal movements of the cover.

9. In combination, a toilet bowl having a flange projecting from its rear portion, axially-spaced bearing brackets mounted on the shelf of said toilet bowl, coaxial hinge pintles pivotally mounted one in each of said bearing brackets, a seat anchored fast on one of said hinge pintles, a cover anchored fast on another of said hinge pintles, anchoring bolts extending upwardly through the shelf of the bowl and through opposite of the spaced bearing brackets and equipped with head-acting portions frictionally engaging the upper portions of the hinge pintles, and means on the opposite end of said anchoring bolts for yieldingly biasing the bolts in a downward direction.

PETER J. SPERZEL.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
646,613	Wilson	April 3, 1900