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MEANS FOR MOUNTING TOILET SEAT AND LID HINGE POST

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2 Sheets-Sheet 1

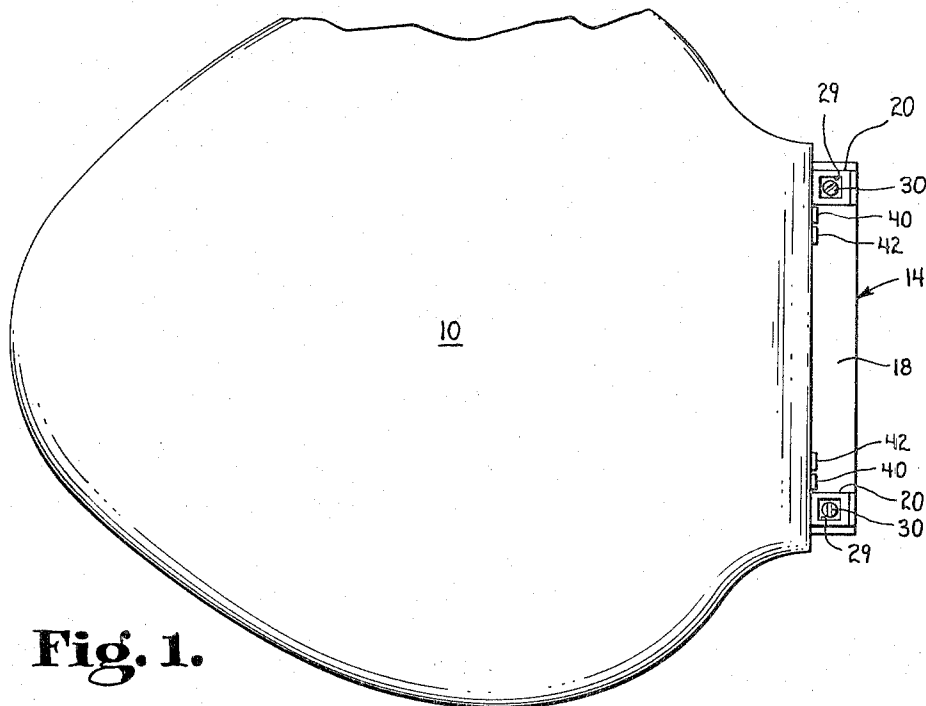


Fig. 1.

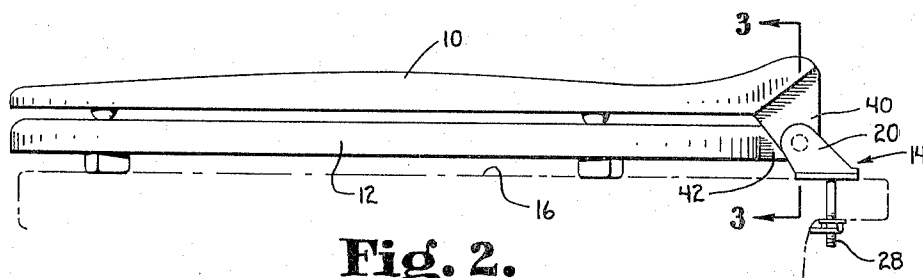


Fig. 2.

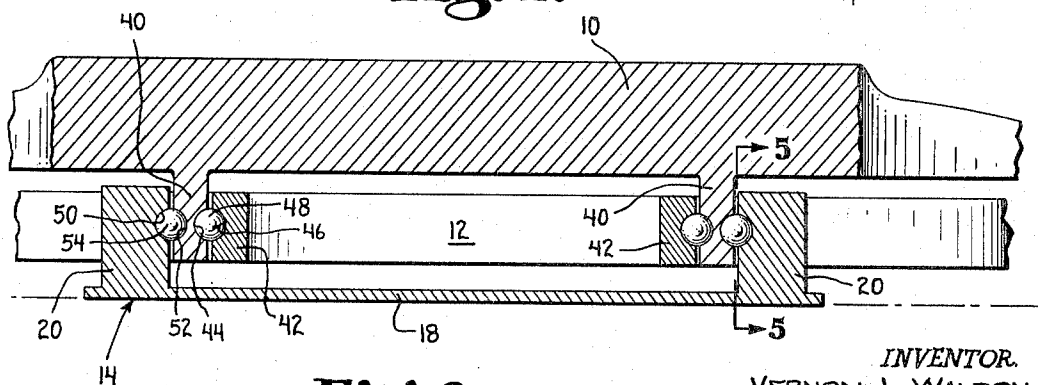


Fig. 3.

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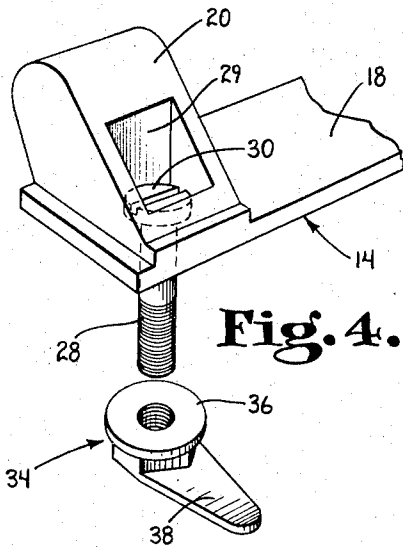
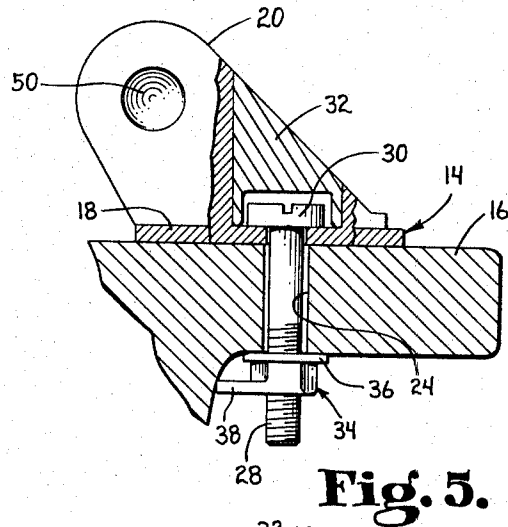
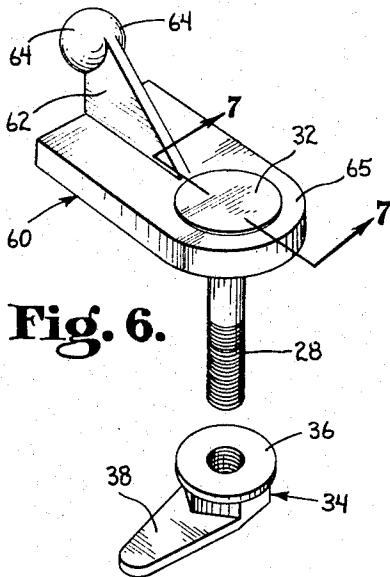
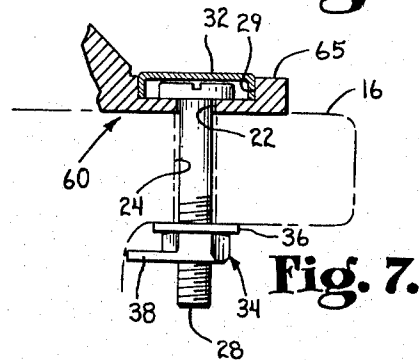
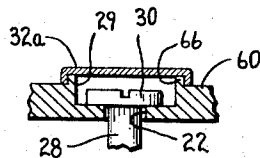
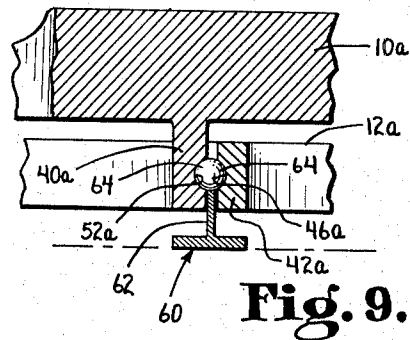
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MEANS FOR MOUNTING TOILET SEAT AND LID HINGE POST

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2 Sheets-Sheet 2



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MEANS FOR MOUNTING TOILET SEAT AND LID HINGE POST

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1 Claim. (Cl. 4-236)

ABSTRACT OF THE DISCLOSURE

A bracket means for mounting a hinge bracket on a toilet bowl consisting of a mounting bracket means which extends laterally across the rear portion of a toilet bowl and carries at each end an upraised ear or boss which is adapted to hingedly carry the toilet lid and seat, with the screwhead or nut being concealed.

This invention relates to toilet lid and seat mountings, and to hinge-providing means useful in installations and applications such as toilet mountings where members are required to be hingedly connected.

Toilets are usually installed along a wall, and often in a corner or adjacent a tub. Such a location, plus the relatively low height of the upper bowl flange off the floor, renders quite inconvenient and awkward an installation requiring the installer to install or tighten connectors from the underside. Yet connection means having a bracket which is connected or tightened from the underside have been used to avoid an upperside visibility of a connector bolt or nut. Toilets also pose the requirement of both the lid and seat to pivot about the same axis, to avoid rubbing or squeaking of those members as they are swung; and the hinge means has to provide that coaxial pivoting yet avoid unsightliness.

Concepts of the present invention, accordingly, provide a novel mounting of a toilet lid and seat, and a novel and economical means for concealed attachment thereof to a toilet bowl whereby the installation is substantially wholly from the upper side, thus providing ease of assembly, yet with no visible screwhead or nut.

These and other details, concepts, and advantages of the present invention will further appear in the following detailed description of illustrative embodiments thereof, taken in conjunction with the accompanying somewhat diagrammatic drawings, in which:

FIG. 1 is a top view of a toilet seat embodying the invention;

FIG. 2 is a side elevational view thereof;

FIG. 3 is a vertical cross-sectional view, taken generally along section line 3-3 of FIG. 2, illustrating details of the hinge construction;

FIG. 4 is a pictorial view of the end-portion of the mounting bracket, viewed from an outside rear viewing point;

FIG. 5 is a cross-sectional view of the mounting bracket, taken generally along section line 5-5 of FIG. 4, portions thereof being broken away to illustrate details of the mounting bolt means;

FIG. 6 is a pictorial view of a mounting bracket according to another embodiment;

FIG. 7 is a cross-sectional view, taken generally along section line 7-7 of FIG. 6, illustrating the mounting of the bracket of FIG. 6 onto an associated toilet bowl;

FIG. 8 is a detail view similar to FIG. 7, but illustrating a modified bracket and screw-concealing means; and

FIG. 9 is a cross-sectional view, similar to FIG. 3, but illustrating the hinge construction utilizing the mounting bracket of FIG. 6.

As illustrated in the drawings, a toilet seat construction

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according to the first embodiment generally comprises a cover lid panel 10, a seat panel 12, and a mounting bracket 14 for hingedly connecting the lid 10 and seat 12 to a toilet bowl 16.

According to concepts of the invention, the mounting bracket 14 is adapted to be mounted from the upper side, providing convenience and ease of installation and removal, yet with no visible bolt head or nut.

Providing this upper-side mounting, the mounting bracket 14 includes a central portion 18 which extends laterally across the rear of the toilet bowl 16, and carries adjacent each end an upraised ear or boss 20 which, as yet to be explained, hingedly carries the lid 10 and seat 12; and the bracket 14 is shown provided in the region of each boss 20 with an opening 22 which registers with an opening 24 provided in a flange of the toilet bowl 16, for a mounting bolt 28. The upper portion of each boss 20 is provided with a counterbore 29 in line with the opening 22, the bottom surface of which provides a seat for the downwardly facing surface of the bolt head 30; and the bolt head 30 is thus recessed into the counterbore 29. A cover 32, whose upper surface is contoured in accordance with the contour of the adjacent portion of the boss 20, is then slipped into the counterbore recess 29, concealing the bolt head 30.

Prior to installing the cover 32, the upper-side mounting is made tight by the installer holding a nut 34 below the bowl flange and in registry with bowl-opening 24, as the bolt 28 is begun to be turned. The nut 34 is shown as having a washer 36 carried on its upper surface, and an arm 38 carried by its lower surface. Frictional engagement of the bolt 28 and the threads of nut 34, as the bolt 28 is turned, moves the nut arm 38 into abutment with an associated wall or bead of the toilet bowl 16; and this abutting contact holds the nut 34 against further turning as the bolt 28 is turned in tightening. Thus, the installation, except for obtaining the initial registry of nut 34 with bolt 28, is entirely from the upper side, and no wrench or other tool is needed to be applied to the nut.

Other concepts of the invention provide novel hinge means for the cover 10 and lid 12, as are now to be explained.

The rear of the toilet lid 10 is shown as provided at each side, just laterally inwardly of the bracket-boss 20, with a downwardly-extending flange 40; and the rear of the seat 12 is shown provided, at a spacing such that they are laterally inwardly of lid flanges 40, with rearwardly-extending flanges 42. The adjacent surfaces of each flange 40 and 42 are shown provided with complementary semi-spherical recesses 44 and 46, respectively; and a ball 48 is provided, which, when the lid 10 and seat 12 are assembled by resilient deformation of flanges 40 and/or 42 to permit them to mutually receive the ball 48, hingedly interconnects the lid 10 and seat 12 in a concealed manner.

Similarly, the adjacent surfaces of each bracket boss 20 and lid-flange 40, are shown provided with complementary semi-spherical recesses 50 and 52, respectively; and a ball 54 is provided which, when the lid 10 and bracket 14 are assembled by resilient deformation of bracket-boss 20 and/or lid-flange 40 to permit them to mutually receive the ball 54, hingedly interconnects the lid 10 to the bracket 14 and thus to the toilet bowl 16, in a concealed manner.

FIG. 6 illustrates another embodiment, wherein there are provided two laterally-spaced mounting brackets 60 (rather than the single bracket 14 with spaced bosses as in the first embodiment), each having, on each side of an upraised ear or boss 62, an integral semi-spherical protrusion 64. The two protrusions 64 of each bracket 60 form in effect a ball-shaped hinge-pin by means now described.

The toilet lid 10a (FIG. 9) has spaced downwardly-

extending flanges 40a, the inner surface of each being provided with a semi-spherical recess 52a; and the spacing of the flanges 40a is such that resilient deformation must be imparted to the bracket-boss 62 and/or the lid-flange 40a to permit the lid 10a to be assembled onto the brackets 60, with each recess 52a fitted over the associated protrusion 64. With the lid 10a and brackets 60 assembled, the parts provide a concealed hinge connection of the lid 10a to the brackets 60 and thus also to the toilet bowl 16.

Similarly, the toilet seat 12a has spaced rearwardly-extending flanges 42a, the outer surface of each being provided with a semi-spherical recess 46a; and the spacing of the flanges 42a is such that resilient deformation must be imparted to the bracket-boss 62 and/or the seat-flange 42a to permit the seat 12a to be assembled onto the brackets 60, with each recess 46a fitted over the associated protrusion 64. With the seat 12a and brackets 60 assembled, the parts provide a concealed hinge connection of the seat 12a to the brackets 60 and thus also to the toilet bowl 16.

FIG. 7 illustrates means providing upper-side mounting yet with no visible screwhead or nut, for the embodiment of FIG. 6, generally in accordance with the first embodiment, the similarity being indicated by correspondence of reference numerals. However, in contrast to the first embodiment, in which the screw-hole 22 and counterbore 29 are located in a region of the upstanding boss 9, in the FIG. 6 embodiment the screw-hole 22 is located in the region of a flat flange 65 of the bracket 60; thus the cover 32 is of a simpler shape, having a horizontal top surface, yet it substantially is flush with adjacent portions of the bracket.

FIG. 8 illustrates modified screw-concealing means in which the upper end of the bracket-recess 29 is provided with an upraised rim 66, and a cover 32a fits over the recess 29 and rim 66, concealing the screw head 30; and the rim 66 provides both a fitting seat for the cover 32a and a rim preventing the draining of liquid into the bracket-recess 29.

It is thus seen that either embodiment of the invention provides a mounting means of new and advantageous concepts, having features and advantages of ease and convenience of concealed mounting from the upper side, and concealment of the connector bolt and of the screw head.

It will thus be seen from the foregoing description of the invention according to the illustrative embodiments, considered with the accompanying drawings and claim, that the invention provides a novel and advantageous mounting means having desirable characteristics and accomplishing its intended objects, including those herein-

before pointed out and others which are inherent in the invention.

It will be understood that modifications and variations may be effected without departing from the scope of the novel concepts of the present invention; accordingly the invention is not to be considered limited to the specific form or arrangement herein described and shown.

I claim:

1. Mounting means for mounting a hinge bracket means on a toilet bowl having a flange with openings therein, said mounting means comprising:
 - a central portion extending across the rear of said toilet bowl, said central portion having a first end and a second end;
 - a first upraised boss for supporting a hinge bracket means carried by said first end;
 - a second upraised boss for supporting a hinge bracket means carried by said second end;
 - each of said bosses being provided with an opening therethrough in register with one of said openings in said flange;
 - a bolt received downwardly through each boss, the threaded end of said bolt extending below the bottom surface of said flange and the head of said bolt being recessed within a counterbore in the upper portion of said boss;
 - a nut received on the threaded end of said bolt;
 - a washer carried on the upper surface of said nut;
 - an arm carried on the lower surface of said nut, said arm adapted to engage said toilet bowl when said bolt is rotated and thereby prevent said nut from rotating with said bolt; and
 - a cover received in said counterbore above said bolt head, said cover concealing said bolt head and having an upper surface contoured in accordance with the contour of the adjacent surface of said boss.

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