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QUICK RELEASE TOILET SEAT MOUNTING

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This invention relates to a clamp for detachably securing a toilet seat to a toilet bowl, and more particularly relates to a toilet seat clamp which permits ready removal of the seat from its mounting on the toilet bowl, for example when it is desired to clean the toilet bowl or toilet seat-lid mechanism.

Modern day toilet seats, in North America, are often, if not usually, secured to the flanged portion about the top of the toilet bowl by means of posts, which are rotatably secured to the rear of the

toilet seat. These posts are bolted through holes in the flanged portion of the toilet bowl at the rear thereof. While this type of assembly permits a toilet seat to be raised it does not permit the seat to be readily removed to facilitate cleaning at the rear of the toilet bowl, particularly around the area between these posts.

Toilet seat securing mechanisms which permit detachment of the toilet seat from its secured position on top of the toilet bowl by simply appropriately pulling on the toilet seat are known in the art. For example, United States Patents Nos. 3,550,164 of J.W. Pease, issued December 29, 1970, and 3,038,173 of J.R. Turek, et al., issued June 12, 1962 both describe magnetic fasteners which are secured to the toilet bowl and which releasably hold corresponding members associated with the toilet seat.

Cook, United States Patent No. 2,204,100, issued June 11, 1940, describes an alternative toilet seat holder having U-shaped members which are secured to and extend from the tops of the posts which are bolted in the spaced holes in the flanged portion to the rear of the toilet bowl. These U-shaped members vertically receive the hinge shaft at the back of the toilet seat.

Brooks, United States Patent No. 3,063,063, issued November 13, 1962 describes and illustrates a further type of releasable toilet seat post coupling having a releasable post, which fits through the spaced holes in the flanged portion to the rear of the toilet bowl into a socket member which is bolted therebelow. This device requires a socket made from a number of components, as well as a carefully machined post which has a notch carefully formed and positioned to

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mate with bearing which is held in the socket.

Other patents of general background interest are U.S. Patent Nos. 3,613,130 of Sansome, issued October 19, 1971; 3,248,170 of Meyers, issued May 3, 1968 and
5 2,440,170 of Duefrene, issued April 20, 1948; Canadian Patent Nos. 712,307 of Barlow, issued June 29, 1965; 754,803 of Fenton, issued March 21, 1967 and 430,671 of Boersma, issued October 16, 1945.

It is an object of the present invention to
10 provide a simpler, hygenic, more economical quick action clamp for detachably securing a toilet seat to a toilet bowl than these prior art devices.

According to the present invention, a clamp is provided for detachably securing a toilet seat and
15 lid to a toilet bowl having two spaced vertical holes in the flanged portion of the rear of the upper part of the bowl, the clamp comprising a first member consisting of a spherically headed bolt and nut means to secure the bolt in a seated engagement within one
20 of the vertical holes so that the spherical head of the bolt extends out beyond the upper part of the bowl, and a second, fastener member to be associated with the toilet seat to engage the bolt, each fastener member having a top circumscribed by downwardly depending sides,
25 the lower edges of the sides to rest in contact with the upper part of the bowl when the fastener is in engagement with the bolt, the lower surface of the top of the

fastener member further provided with a downwardly depending centrally disposed circular wall forming a socket; the head of the bolt and the socket of the fastener member being contoured for mating engagement

5 for releasably securing the bolt and fastener member against unpurposeful disengagement; the fastener member being further provided with finger grip means to assist intentional disengagement of the fastener means from the head of the bolt, the finger grip means being located

10 at the rear of the top of the fastener member and laterally spaced with respect to the socket thereof, and comprising an extension of the top of the fastener member beyond the rear side thereof to provide a lip under which the fingers may be inserted for application

15 of upward force to that portion of the fastener member.

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The clamp members may for example be molded from any appropriate durable, semi-rigid plastic or other suitable material.

The clamp according to the present invention permits ready disengagement of the toilet seat from the toilet bowl, merely by a quick upward pull on the fastener or on the rear of the toilet seat to disengage the two members. The members cooperate to securely hold the toilet seat in place until disengagement is desired. The spherical head of the bolt provides a regular, unbroken surface which promotes hygiene and cleanliness.

Other objects and advantages of the present invention will become apparent upon reading the following detailed description and upon referring to the drawings in which:

Figure 1 is a perspective view of a section of a toilet bowl and toilet seat having a clamp according to the present invention, shown in attached arrangement;

Figure 2 is a section view along lines II-II of Figure 1; and

Figure 3 is a plan view from below of the upper portion of the clamp of Figure 1.

In the Figures, similar features have been given similar reference numerals.

While the invention will be described in connection with example embodiments thereof, it will be understood that it is not intended to limit the invention to those embodiments. On the contrary, it is intended to cover all alternatives, modifications and

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equivalents as may be included within the spirit and scope of the invention as defined by the appended claims.

In Figures 1 and 2 there is shown a clamp 2 for detachably securing a toilet seat 4 with a hinge shafts 6 to a toilet bowl 8 having two spaced holes 10 in the flanged portion 12 of the upper part of the bowl. The clamp has a bolt 14 secured, by means of nut 16 and flange 18 (integrally secured to the bolt beneath head 20), firmly in position through flanged portion 12 of toilet bowl 8 (Figure 2). The upper end of post 14 is formed into spherical head 20. A mating fastener 22 is provided having a socket 24 for releasably receiving spherical head 20 and securing it therein against unpurposeful disengagement. Socket 24 is located within circular wall 26 downwardly depending from the lower surface 28 of the top of fastener 22. Notches 30 are spaced in wall 26 to permit the use of semi-rigid materials in forming the fastener, the walls thereby providing sufficient rigidity to secure the bolt head within the socket, but providing sufficient give to enable disengagement or engagement of the bolt and fastener. For greater rigidity and security when the parts of the clamp are in mated position, the bottom edges 32 of sides 34 of fastener 22 rest on the upper surface of flanged portion 12 of the bowl. Also the lower edge of wall 26 is preferably formed so that it abuts and rests on the upper surface of flange 18 (Figure 2).

To assist in gripping the fastener or in widening the socket of the fastener to facilitate release of the post projection therefrom, fastener 22 is provided with finger grip means 25

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consisting of a lip rearwardly extending from the top of fastener 22. Fastener 22 is further provided with extension 36 and hole 38 therein for pivotably receiving hinge shaft 6 of toilet seat 4 and the toilet lid 40.

When it is desired to remove toilet seat 4 and its lid from position on top of toilet bowl 8, for example to clean or otherwise service the toilet bowl, an appropriate upward tug on finger grip means 25 or on the rear of the toilet seat 4 and lid 40 will disengage head 20 from fastener 22 to detach the seat and lid. Conversely, to reattach seat 4 and the lid to the top of toilet bowl 8, all that is required is to snap fastener 22 back into engagement with extension 20.

Thus it is apparent that there has been provided in accordance with the present invention a releasable toilet seat clamp that fully satisfies the objects, aims and advantages set forth above. While the invention has been described in conjunction with an example embodiment thereof, it is evident that many alternatives, modifications and variations will be apparent to those skilled in the art in light of the foregoing description. Accordingly, it is intended to embrace all such alternatives, modifications and variations as fall within the spirit and broad scope of the appended claims.

CLAIMS:

1. A clamp for detachably securing a toilet seat to a toilet bowl having spaced vertical holes in the flanged portion of the rear of the upper part of the bowl, the clamp comprising a first member consisting of a spherically headed bolt and nut means to secure the bolt in seated engagement within one of the vertical holes so that the spherical head of the bolt extends out beyond the upper part of the bowl, and a second, fastener member to be associated with the toilet seat to engage the bolt, each fastener member having a top circumscribed by downwardly depending sides, the lower edges of the sides to rest in contact with the upper part of the bowl when the fastener is in engagement with the bolt, the lower surface of the top of the fastener member further provided with a downwardly depending centrally disposed circular wall forming a socket; the head of the bolt and the socket of the fastener member being contoured for mating engagement for releasably securing the bolt and fastener member against unpurposeful disengagement; the fastener member being further provided with finger grip means to assist in intentional disengagement of the fastener means from the head of the bolt, the finger grip means being located at the rear of the top of the fastener member and laterally spaced with respect to the socket thereof, and comprising an extension of the top of the fastener member beyond the rear side thereof to provide a lip under which the fingers may be inserted for application of upward force to that portion of the fastener member.



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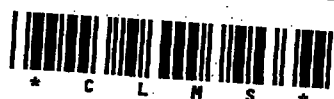
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2. A clamp according to claim 1 wherein the downwardly depending circular wall is essentially rigid, and provided with a plurality of notches piercing the wall and extending axially from the lower edge thereof, whereby the walls are provided with sufficient give to enable snapping the head of the bolt into engagement in the socket, or removal of the bolt therefrom.

3. A clamp according to claim 1 wherein a flange of circular periphery is secured to the bolt immediately below its head, this flange to rest on the upper surface of the toilet bowl when the bolt is in position within one of the vertical holes through the flanged portion of the rear of the upper part of the bowl.

4. A clamp according to claim 3 wherein the upper surface of the flange and the bottom edge of the circular wall forming the socket are in abutting relationship when the fastener is in engagement with the bolt.

5. A clamp according to claim 1 for detachably securing a toilet seat to a toilet bowl having spaced vertical holes in the flanged portion of the rear of the upper part of the bowl, the clamp comprising a first member consisting of a spherically headed bolt and nut means to secure the bolt in seated engagement within one of the vertical holes so that the spherical head of the bolt extends out beyond the upper part of the bowl, and a second, fastener member to be associated with the toilet seat to engage the bolt, each fastener



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member having a top circumscribed by downwardly depending sides, the lower edges of the sides to rest in contact with the upper part of the bowl when the fastener is in engagement with the bolt, the lower surface of the top of the fastener member further provided with a downwardly depending centrally disposed circular wall forming a socket, the downwardly depending circular wall is essentially rigid, and provided with a plurality of notches piercing the wall and extending axially from the lower edge thereof, whereby the walls are provided with sufficient give to enable snapping the head of the bolt into engagement in the socket, or removal of the bolt therefrom, the head of the bolt and the socket of the fastener member being contoured for mating engagement for releasably securing the bolt and fastener member against unpurposeful disengagement; the fastener member being further provided with finger grip means to assist in intentional disengagement of the fastener means from the head of the bolt, the finger grip means being located at the rear of the top of the fastener member and laterally spaced with respect to the socket thereof, and comprising an extension of the top of the fastener member beyond the rear side thereof to provide a lip under which the fingers may be inserted for application of upward force to that portion of the fastener member, and wherein the bolt is further provided with a flange of circular periphery is secured to the bolt immediately below its head, this flange to rest on the upper surface of the toilet bowl when the bolt is in position within one of the vertical holes through the flanged portion of the rear of the upper part of the bowl.



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6. A clamp according to claim 5 wherein the upper surface of the flange and the bottom edge of the circular wall forming the socket are in abutting relationship when the fastener is in engagement with the bolt.

7. A clamp as claimed in claim 1, substantially as described with reference to and as illustrated by the accompanying drawings.

The text of the specification has been reproduced by photocopying the applicants original typescript. It may contain a few amendments which are difficult to read. The original typescript containing these amendments may be inspected on the premises of the Patent Office

