Sept. 8, 1970 H. M. STAIRS 3,526,907

TOILET SEAT AND COVER COMBINATION

Filed Nov. 30, 1967 4 Sheets-Sheet 1

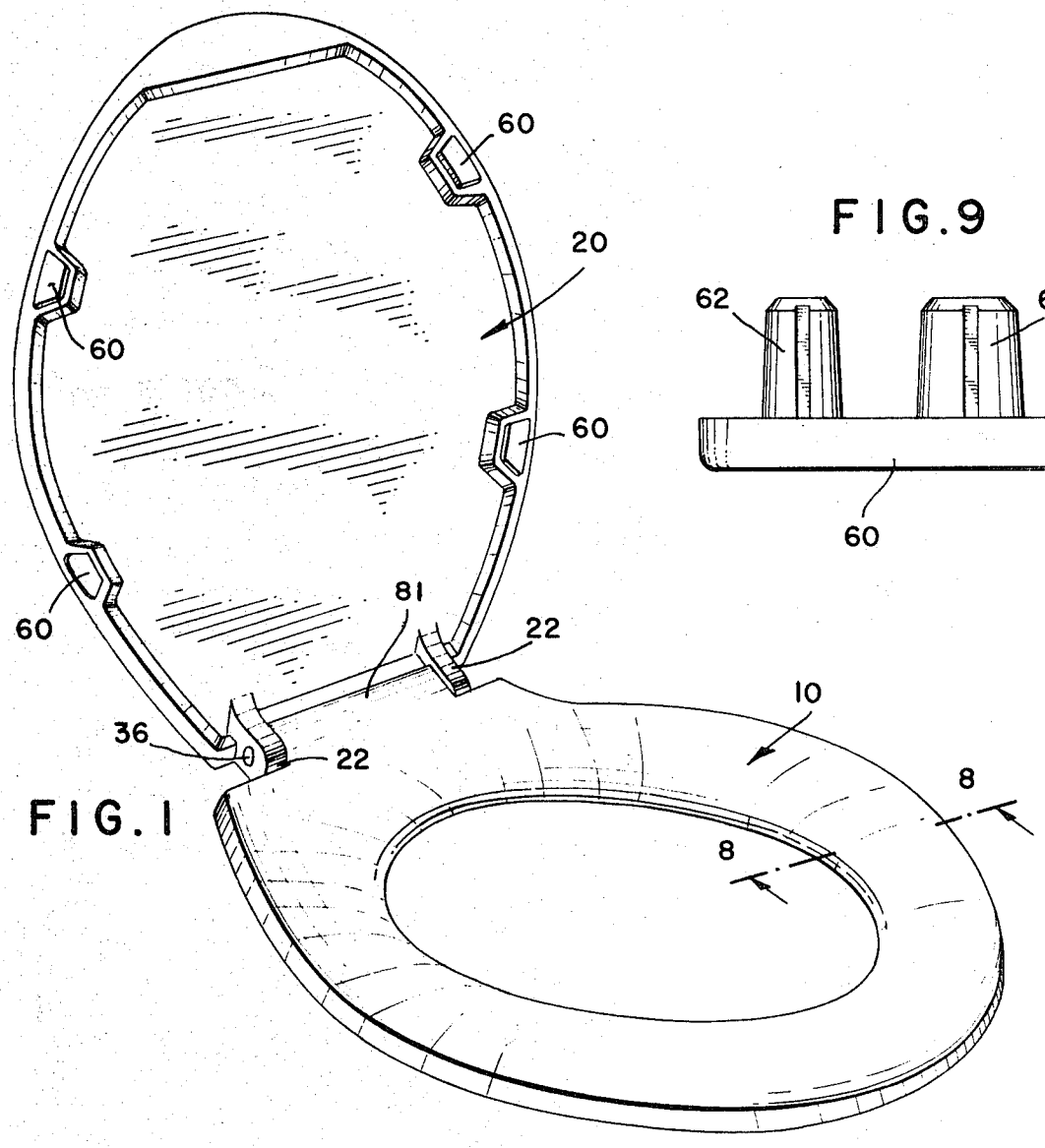
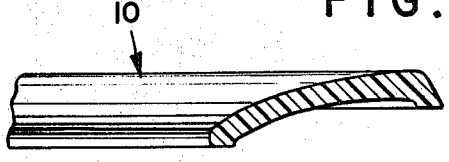


FIG. 1

FIG. 9

FIG. 8



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TOILET SEAT AND COVER COMBINATION

Filed Nov. 30, 1967 4 Sheets-Sheet 2

FIG. 2

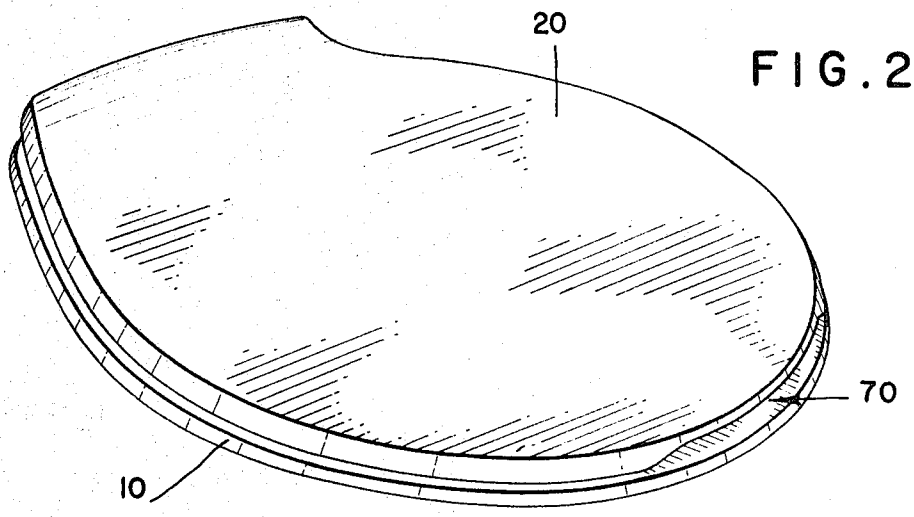
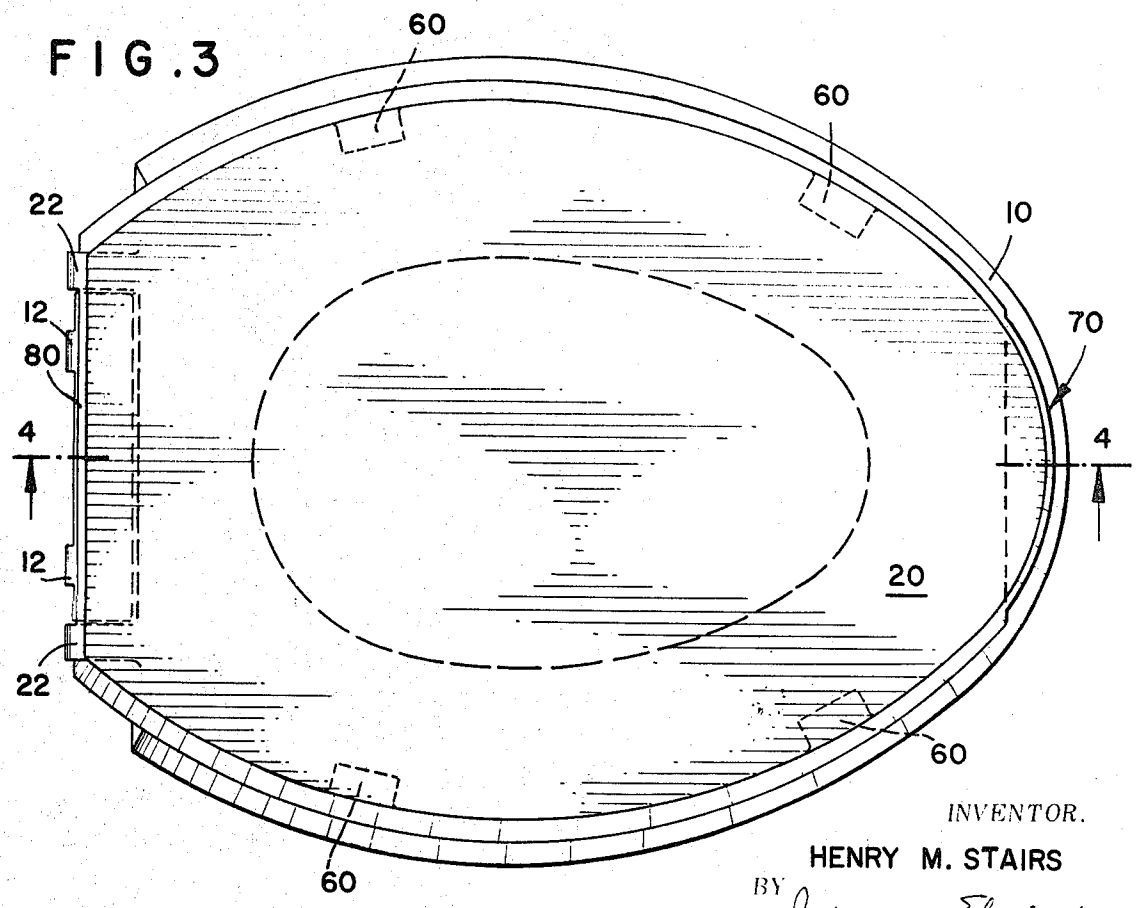


FIG. 3



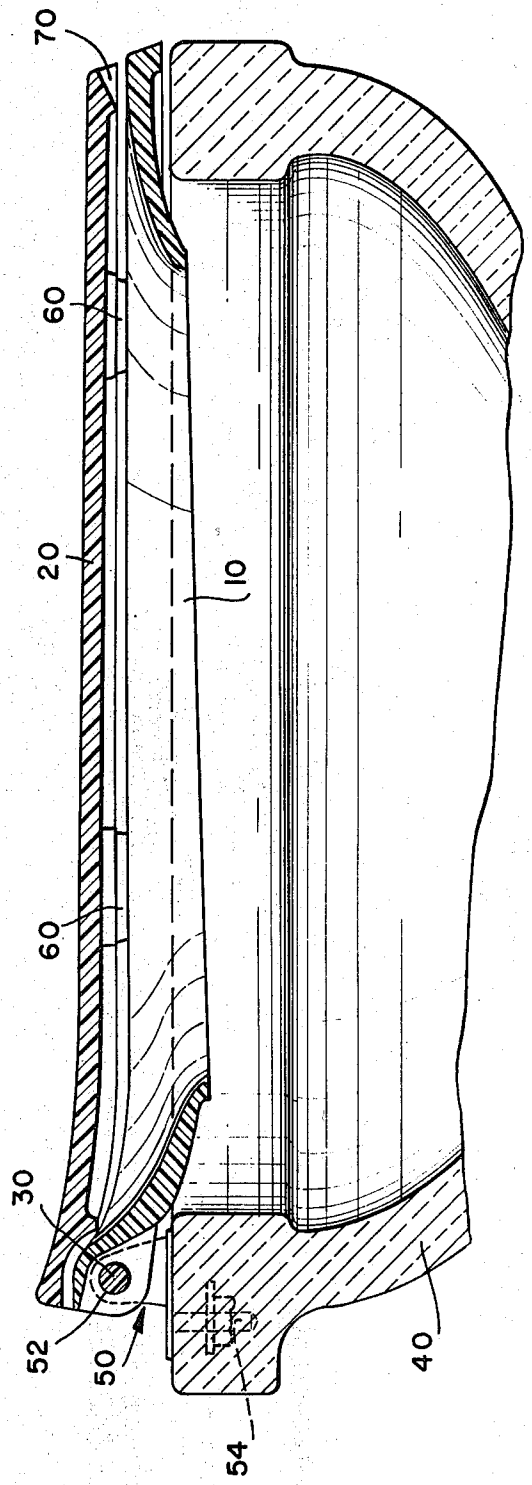
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TOILET SEAT AND COVER COMBINATION

Filed Nov. 30, 1967 4 Sheets-Sheet 3

FIG. 4



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TOILET SEAT AND COVER COMBINATION

Filed Nov. 30, 1967 4 Sheets-Sheet 4

FIG.5

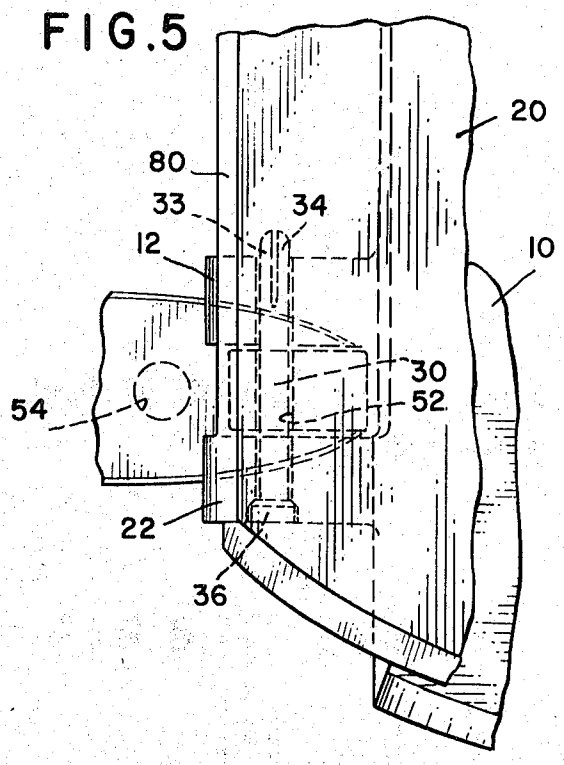
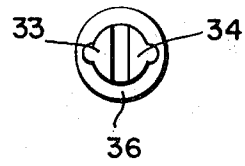


FIG.7b



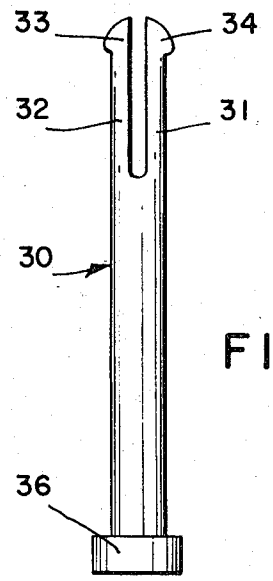


FIG.7a

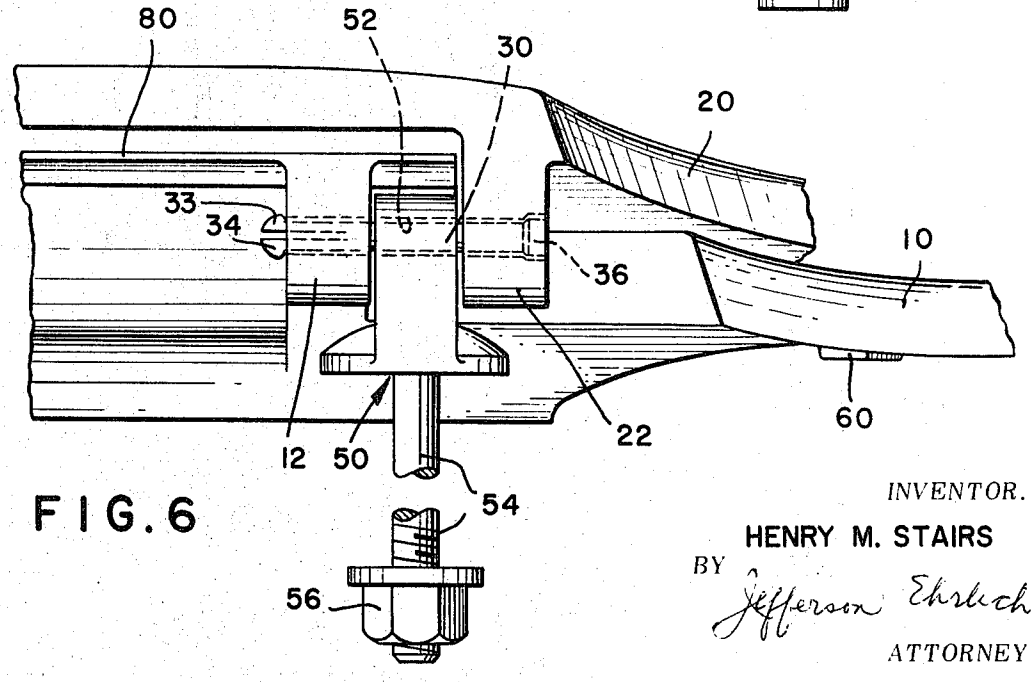


FIG.6

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TOILET SEAT AND COVER COMBINATION

Henry Marshall Stairs, Jefferson, Ky., assignor to American Standard Inc., New York, N.Y., a corporation of Delaware

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Int. Cl. A47k 13/12, 13/00, 13/02
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17 Claims

ABSTRACT OF THE DISCLOSURE

This invention relates to a readily installable and detachable toilet seat and cover combination. The combination includes an elongated cylindrical pintle with a longitudinal groove cut at one end of the pintle so as to provide two prongs and the ends of these prongs are formed into a spherical shape having a diameter somewhat larger than the diameter of the openings of the lugs of the toilet seat and cover and of the seat posts. The other end of the pintle is formed into an enlarged cap or head which serves to limit the longitudinal movement of the pintle.

The pintle may be inserted into the openings of the several lugs and seat posts merely by the application of manual longitudinal pressure so as to install the parts in their operative positions. In order to remove the pintle, very small pressure is applied to the end of the prongs so as to reduce the spacing between the prongs, whereupon the pintle may be slid out of the abovementioned openings.

This invention relates to toilet seats and covers therefor and, more particularly, this invention relates to a combination toilet seat and cover which is simple in construction and low in cost and readily and easily removable so that the parts may be cleaned and then re-installed in their original positions.

Although the conventional toilet seat and cover are mounted on the toilet bowl in such a manner that they can only be removed after considerable effort, usually with the aid of a wrench or pliers or both, toilet seat and cover combinations have heretofore been proposed which were intended to be readily removable, but the removability feature was not frequently used due principally to the difficulties of implementing and carrying out the removability. According to the present invention, a toilet seat and cover combination is disclosed which is so constructed that, by a simple means, such as a specially designed pintle which is incorporated as part of the operative combination, both the toilet seat and cover may be readily removed whenever desired for cleaning or other purposes and thereafter re-installed with equal ease. The construction of the arrangement will be such that the housewife, for example, who may have little or no mechanical skill, will be able to perform the simple routine manipulation for detaching the seat and cover and then replacing them without the employment of any tools or appliances or special skills.

It will be readily apparent that a toilet seat and cover which can be readily detached and re-installed at will and without great effort would have great advantages for sanitary reasons and would have appeal to administrators of hopsitals, sanitaria and other institutions, as well as to housewives. The toilet seat and cover combination of this invention are easily removable and attachable as will be explained and are, moreover, especially suited for use in hotels and boats and other places, e.g., where the easy provision of a freshly sanitized toilet seat and cover would have special appeal to fastidious occupants who take pride in their cleanliness and the avoidance of infection.

One of the features of this invention resides in a special pintle which is to be a component of the seat and cover combination and can be easily inserted through the appropriate aligned openings in the lugs of the toilet seat and cover as well as of the seat posts of the toilet bowl in order to have the parts brought into operative assembled engagement with each other; and thereafter the seat and cover may be just as easily disassociated from the seat posts of the bowl by mere removal of the pintle.

The pintle of this invention may be briefly described as in the form of a rod-like or cylindrical element with a groove at one end so as to establish two somewhat flexible tines or prongs, such as those that are associated with a fork or clothes pin, so that the two tines or prongs may be momentarily pressed together whenever desired to enable the pintle to enter the openings of the various parts to join the seat and cover and other parts together. Thereafter, when the two tines are again pressed together, the pintle may be removed from the several parts so that the parts may be disassociated from each other. The ends of the two tines of the pintle are enlarged to a degree so as to form a rounded or bulbous head, that is, a spherical head, which will serve as a barrier to retain the pintle in its position and to hold the other parts together as long as desired. The rounded or bulbous head may be gripped by the fingers of the user for the application of a small amount of physical pressure to the tines, whereupon the tines may be flexed sufficiently for the quick and easy removal of the pintle. The other end of the pintle may be shaped to embody an enlarged cap or head which is somewhat larger than the cross sectional dimension of the pintle so that the cap or head will limit the longitudinal movement of the pintle in the forward direction.

Another feature of the toilet seat of this invenion resides in is special contour. The toilet seat is shaped so that there is a gradual and continuous downward slope directed toward the centre of the toilet bowl and, furthermore, the inner edge of the seat will extend below the upper rim of the bowl. Such a construction aids in keeping the seat dry. In addition, the special contour is shaped to generally conform with the human anatomy for maximum comfort.

Another of the features of this invention relates to the appearance of the seat and its cover as a unitary combination. The seat and cover are provided with bevelled edges which are substantially equally tapered to present a substantially continuous and matching contour.

Another of the features of the seat and cover of this invention resides in the employment of a number of flat-faced bumpers which are permanently installed at selected points in the underside of the seat and in the underside of the cover. The bumpers maintain a uniform spacing between the seat and the cover as well as between the seat and the bowl. Furthermore, the bumpers may be permanent parts of the seat and the cover.

And still another of the features of this invention resides in the employment of a solid plastic or nylon material not only for the construction of the seat and the cover as well as the pintles but also for the bumpers which are intended to be permanent and non-removable components of the seat and cover combination.

This invention, as well as all of its objects and features, will be better understood from the more detailed description hereinafter following when read in connection with the accompanying drawing in which FIG. 1 illustrates a perspective of the toilet seat and cover combination of this invention, the seat and cover being depicted in their open positions; FIG. 2 shows a perspective of the combination toilet seat and cover when they are closed against each other; FIG. 3 shows a plan view of the

toilet seat and cover combination; FIG. 4 illustrates a longitudinal cross-sectional view, taken along the line 4—4 of FIG. 3, of the above-noted combination when mounted on a toilet bowl (shown partly cut away); FIG. 5 shows a plan view of a corner of the toilet seat and cover combination when mounted upon a seat post; FIG. 6 illustrates a cut-away section of a different view of a corner of the toilet seat and cover combination of this invention but illustrating, in greater detail, the seat post of the toilet bowl; FIGS. 7*a* and 7*b* show a lateral view and an end view, respectively, of the pintle element of this invention; FIG. 8 shows a perspective of a section of the toilet seat and cover of this invention taken along the lines 8—8 of FIG. 1; and FIG. 9 shows a cross-sectional view of one of the bumper elements which is included in this invention. The same reference characters will be used throughout the drawings to represent the same parts throughout the various figures in the drawing.

In the drawing, the toilet seat is designated **10**, the seat cover **20** and each pintle **30**. The toilet bowl is designated **40** (see FIG. 4), for example. The toilet seat **10** integrally embodies two hinge lugs **12** (see FIGS. 3 and 6, for example) and the toilet seat cover **20** integrally embodies similar hinge lugs designated **22**. The spacing between the two cover hinge lugs **22** is greater than the spacing between the seat hinge lugs **12** so that the intervening space between each pair of corresponding and adjacent hinge lugs **12** and **22** will accommodate the corresponding seat post **50**. The latter seat post **50** is intended to be fastened to the toilet bowl **40** so as to hold the toilet seat **10** and its cover **20** in operative relationship. The shaft **54** of each such seat post **50** is designed so as to be readily insertable into the rim, or adjacent to the rim, of the bowl **40** and fastened by means of a threaded member, such as a nut **56**, with or without one or more conventional washers (not shown).

Each pintle **30** is shown to include two flexible or deflectable tines **31** and **32** at one end thereof and the tines have a rounded bulbous head **33**, **34**, as shown. The other end of the pintle **30** embodies a cylindrical cap or head **36** which is of larger cross-section dimensions than the cross-section of the pintle **30**. It will be observed that the seat hinge lugs **12** and **22** of the seat and cover respectively and the seat post **50** have cylindrical openings into which the pintle may be inserted. Also, the seat post **50** has a concentric recession to accommodate the head **36** of the pintle **30** after it is inserted into the above-mentioned cylindrical openings.

The two pintles **30** of each combined toilet seat and cover may be separately inserted through the corresponding openings ofthe seat hinge lugs **12** and **22** of the seat **10** and cover **20**, and through the opening of the seat post **50**. The tines **31** and **32**, because of the gap between them, are deflectable and respond to minor manual pressure which is applied longitudinally to the rounded bulbous head **33** and **34**. The manual pressure causes the tines **31** and **32** to slide and be deflected toward each other so as to be easily movable through the corresponding above noted openings as above indicated. After the rounded bulbous head **33**, **34** passes through the seat lubs and hinge post, the pressure previously applied between the tines **31** and **32** will be released, whereupon the pintle **30** will be held in position to hold the seat **10** and cover **20** affixed to the bowl **40**. The seat **10** and cover **20**, however, may then be rotated in the conventional manner, as often as desired about the two pintles **30**, without disengaging either the seat **10** or the cover **20** from the seat post **50**. The insertion of each pintle **30** requires only a limited pressure and can be performed by the housewife without much effort.

On the other hand, when it is desired to remove the seat **10** and the cover **20**, it is only necessary to remove the two pintles **30**. This can be easily accomplished merely by applying limited pressure by hand to the bulbous segments **33** and **34** so as to decrease the gap between the tines **31** and **32**. Each pintle **30** may then be slid out of the cylindrical openings within the hinged elements **12**, **52** and **22**. When the seat **10** and the cover **20** are thus removed, they may be cleaned and then replaced merely by re-inserting the pintles **30** through the appropriate openings as before.

Each of the bumpers **60** embodies two legs **62** and **64** which may be inserted within appropriate and corresponding openings in the seat **10** and the cover **20**. They may be glued or otherwise affixed into the seat and cover so as to maintain permanent positions therein. The bumpers **60** may be made of nylon or plastic materials similar to the materials of which the seat **10** and cover **20** are made. If desired, the bumpers **60** may be cast into the seat and cover at the time of manufacture so as to form unitary structures. The bumpers are made to last as long as the combination seat and cover.

The front of the cover **20** has a groove **70** which facilitates the easy movement of the cover **20** away from the seat **10** whenever desired.

The cover **20** has an overlay or overhang **80** which overhangs the hinge lugs **22**. The overlay **80** will conceal from view the seat hinge lugs **12** as well as the seat posts **50** when the cover **20** is moved to its horizontal position over seat **10**. In addition, the seat **10** has an overlay area **81** which overhangs the seat hinge lugs **12** as well as the seat posts **50** when the cover **20** is moved to its vertical position over the seat **10**. This improves the appearance of the combination.

The construction of the pintles **30** with their slotted or forked deflectable tines **33**, **34** permits of a ready assembly or disassembly of the seat and cover by unskilled personnel for maintenance or cleaning or other purposes. It is especially noted that the pintles **30** are parts of the operable combination and constitute not only the rotational axis for the seat **10** and cover **20**, but also the means for the assembly or disassembly of the units. The gradual sloping contour of the seat which extends below the top level of the bowl **40** provides an added feature of cleanliness and serves also to retain the seat **10** surface dry. The gradual sloping contours of the seat **10** also provide the feature of comfort by conforming generally with the human anatomy. The bumpers **60**, which are also made of a plastic or nylon material matching the material of which seat **10** and cover **20** are made, present a finished appearance and they are shaped so as to maintain the seat **10** at a uniform elevation from the top of the bowl **40** and the cover **20** at a uniform elevation with respect to the seat **10**.

Although two pintles designated **30** are shown and described as providing means for hinging a seat **10** and cover **20** to a toilet bowl **40**, it will be apparent that a longer single pintle of similar construction may be substituted and employed with equal facility to provide the nceessary detachability to the combination.

The pintle **30**, while here applied to a toilet seat and cover combination, is readily adaptable as a general purpose unit for entirely unrelated equipments and apparatus. For example, the pintle may be employed to join a door to a doorpost so as to serve as a hinge about which the door may be rotated. The pintle may be inserted into the openings of the hinge merely by the application of manual pressure and removed, whenever desired, merely by reducing the spacing between the tines and then slid out of the hinge.

While this invention and its various features have been shown and described in certain particular arrangements merely for illustrative purposes, it will be understood that the general principles of this invention may be incorporated in and applied to other and widely varied organizations without departing from the spirit of the invention and the scope of the appended claims.

What is claimed is:

1. The combination of a toilet seat and a cover therefor each having a plurality of lugs having openings therein, means for joining said cover to, or for disengaging said cover from, said toilet seat, said means comprising an elongated pintle of cylindrical shape having a longitudinal slot in one segment of the pintle so as to provide two tines, said tines being rounded at their termini in the form of a sphere having a diameter exceeding the diameter of said pintle, the other end of said pintle being provided with an enlarged cap, said pintle being movable through the openings of said lugs in response to manual pressure applied to the cap of the pintle in the direction of said openings to deflect the tines and thereby reduce the spacing therebetween so as to join said cover to said toilet seat, said pintle being removable from said openings by applying manual pressure to the spherical ends of said pintle to again deflect the tines to reduce the spacing therebetween so that the pintle may be slid out of said openings so as to disengage said cover from said toilet seat.

2. The combination recited in claim 1 in which the pintle is replaced by a plurality of the similar pintles each separately joining one of the lugs of the seat to one of the lugs of the cover.

3. The combination of a toilet bowl having seat posts provided with openings, a seat and a cover therefor each equipped with lugs having openings therein, means for mounting said seat and said cover on said bowl or for disengaging said seat and said cover from said bowl, said means comprising a plurality of pintles, each of which may be slid in one direction through the aligned openings of said seat posts and said lugs so as to join the seat and the cover to the bowl, and each of which may be slid in the opposite direction to remove said pintles so as to detach said seat from said cover and from said bowl, each of said pintles consisting of a cylindrical elongated member having an elongated groove at one end thereof providing two flexible and deflectable prongs, the termini of said prongs being enlarged into a bulbous shape the overall dimension of which is somewhat greater than the diameter of the pintle and greater than the diameter of the openings in said seat posts and said lugs, the other end of said pintle being enlarged to form a head so as to limit the longitudinal movement of said pintle.

4. The combination recited in claim 3 in which the seat is contoured so as to be continuously directed downwardly toward the center of the toilet bowl and the inner rim of the seat extends below the top of the toilet bowl.

5. The combination recited in claim 3 in which the cover is provided with an overhang at its rear to conceal the seat posts and the lugs when the cover is closed against the seat.

6. The combination recited in claim 5 in which the seat, the cover, and the pintle are made of plastic materials.

7. The combination recited in claim 3 including a plurality of bumpers formed in the underside of the seat and in the underside of the cover so that the seat will be spaced uniformly from the top of the bowl and the cover will be spaced uniformly from the top of the seat.

8. The combination recited in claim 7 in which the seat and the cover are both bevelled at their outer rims so that the bevelled rims appear substantially to have a common outer rim surface.

9. The combination of a toilet seat and cover therefor each having one or more lugs, each lug having an opening therein, means for joining said cover to, or for disengaging said cover from, said toilet seat, said means comprising a pintle of a substantially uniform cross-section and capable of movement through the openings of said lugs, one end of said pintle having a longitudinal slot therein so as to form two deflectable tines, each of said tines having an outwardly extending projection forming an enlargement so that the enlarged projections of the two tines will bar the movement of the pintle through the openings of said lugs except when the tines are deflected to reduce the spacing therebetween, the other end of the pintle having a cap portion which is larger than the openings in said lugs.

10. The combination defined by claim 9 in which the outwardly extending projection on each tine is tapered so that the enlargement increases over a small longitudinal distance from the slotted end of the pintle in the direction in which the tine extends.

11. The combination of claim 8 in which the outwardly extending projection on each tine consists of first and second tapers, the first taper providing an enlargement which increases as the tine extends from the slotted end of the pintle and the second taper decreases as the tine extends further beyond the first taper.

12. The combination of a toilet bowl having seat posts having openings therein, a seat and a cover for the toilet bowl, each provided with a lug having an opening, means for mounting said seat and said cover on said bowl or for disengaging said seat and said cover from said bowl, said means including a pintle of a substantially uniform cross-section so that it is movable through the openings in the seat posts and in the lugs of the seat and the cover, one end of said pintle having a longitudinal slot therein so as to form two deflectible tines, each of said tines having a projection forming an enlargement so that the enlargements of the two tines together will bar the movement of the pintle through the several openings except when the tines are deflected to reduce the spacing therebetween, the other end of the pintle having a head portion which is larger than the openings in said seat posts and said lugs.

13. The combination defined by claim 12, including two similar pintles each of which joins the toilet bowl to the seat and cover.

14. The combination of claim 13 in which the projections on the tines of each pintle provide first and second tapers, the first taper providing an enlargement which increases in magnitude as it extends longitudinally from the slotted end of the pintle and the second taper decreasing as it extends longitudinally further beyond the first taper.

15. The combination of claim 14 in which each of the pintles is made of plastic materials.

16. The combination of a toilet bowl and a seat therefor, means affixed to said bowl and said seat for forming openings for removably coupling the seat to the bowl, and a pintle having a substantially uniform cross-section so that it is movable through said openings, one end of said pintle having a tapered expanding section followed by a tapered companding section, said one end having a longitudinal slot therein so as to form two deflectable tines, said expanding section of the tines of the pintle preventing the passage of the pintle through said openings when the tines are undeflected, the other end of said pintle having a head which is larger than said openings.

17. The combination of claim 16 including a similar additional pintle.

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