United States Patent

Mielback et al.

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[54] **COMPACT CLOSET CARRIER**

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[52] **U.S. Cl.** ..... **4/252 R**

[51] **Int. Cl.** **E03d 11/00**

[58] **Field of Search** 4/191, 252

[56] **References Cited**

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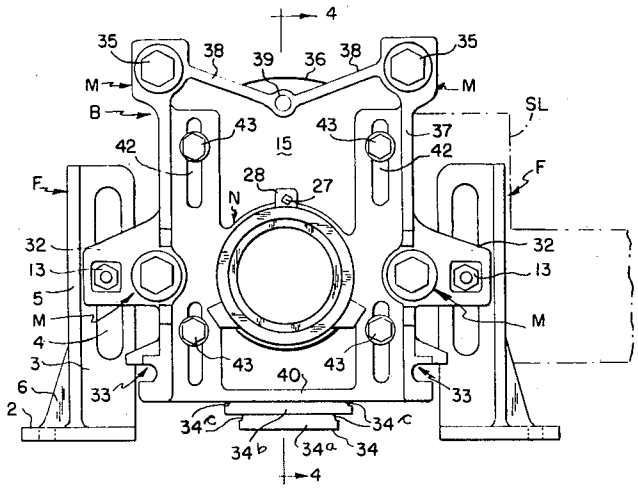
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[57] **ABSTRACT**

A face plate for vertically adjustably clamping to a soil line closet fitting bowl-connection branch, with a sealed axially adjustable bowl coupling connecting extension, a pair of vertically adjustable support feet and closet bowl flange clamping mounting studs, as a carrier assembly; the plate being invertible from one position for four stud mounting of a siphon jet bowl to a second position for three stud mounting of a blow-out type bowl.

8 Claims, 4 Drawing Figures



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SHEET 1 OF 2

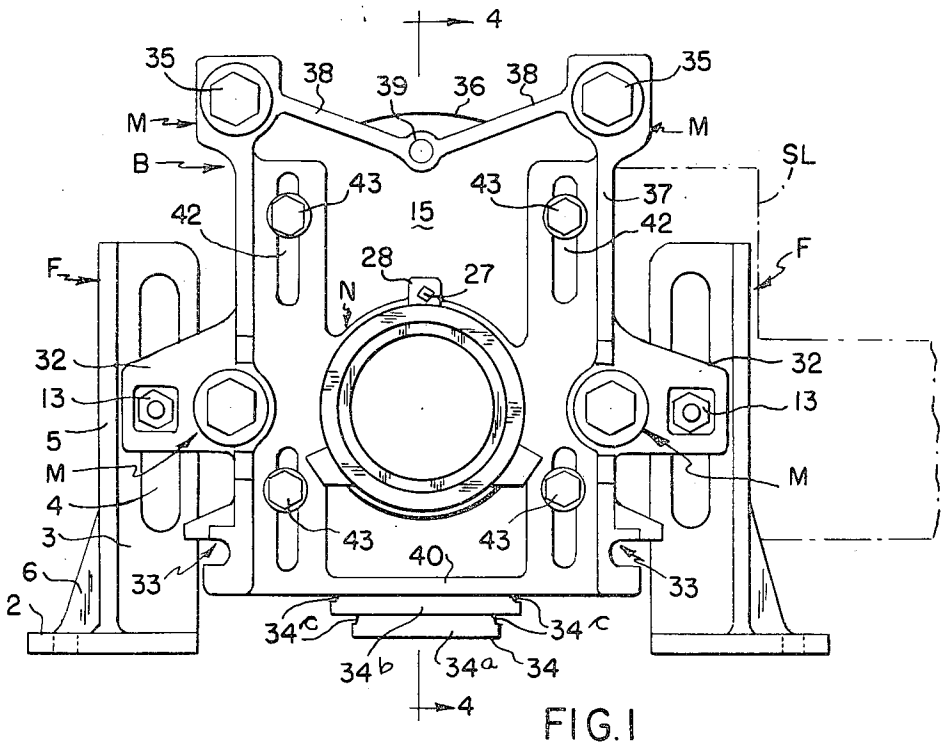


FIG. 1

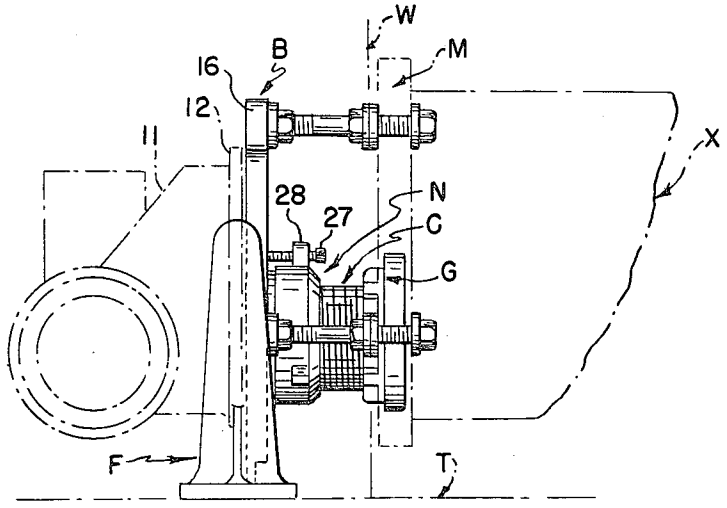


FIG. 2

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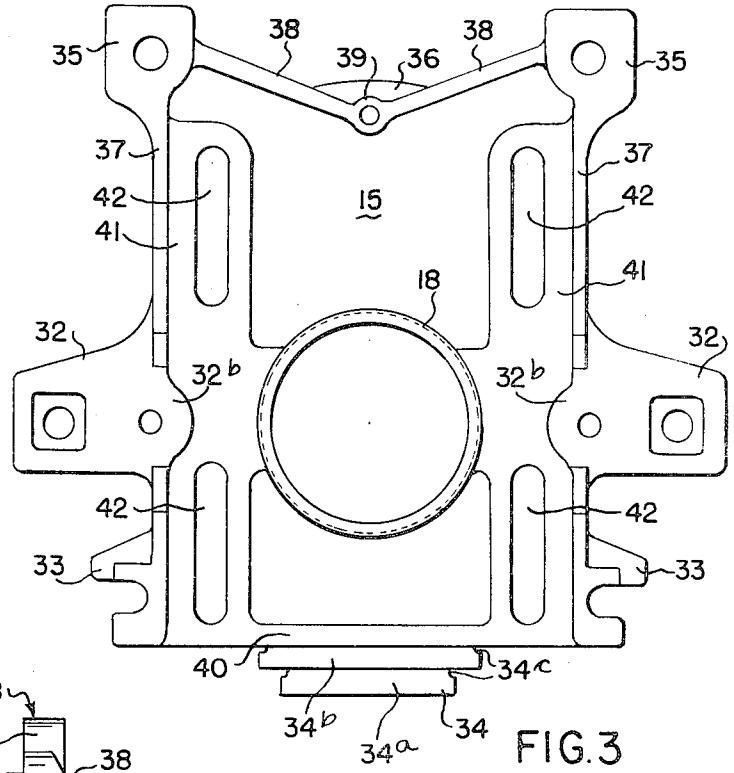


FIG.3

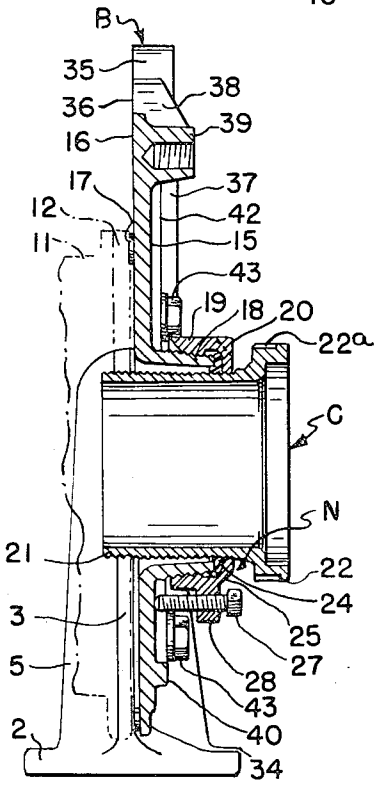


FIG.4

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COMPACT CLOSET CARRIER

A wide variety of water closet bowl carrier and soil line fittings and combinations thereof are known to the prior art for supporting wall-hung water closet bowls, urinals and like fixtures, and providing a fixture discharge connection to the corresponding soil line fitting. The present invention is more particularly directed to improving a fixture carrier of the type wherein a face plate is vertically adjustably clamped and sealed to a flanged vertically elongated opening of a soil line fitting connection or inlet branch, to afford vertical adjustment both for the height of the fixture relative to the floor and also to accommodate the pitch of a horizontally running soil line for each closet in a battery of closets; and wherein the face plate also serves as a part of a carrier combination by itself carrying water closet bowl mounting studs and further being itself supported through vertically adjustable feet anchored to the floor or slab of the building environment, whereby both a portion of the soil line in which the fitting is included and also the weight of the closet-bowl fixture load are transmitted through the face plate to the floor or slab.

In a carrier embodying the present invention, by the particular form of the face plate, the means for sealing the adjustable closet bowl connecting extension thereto, the formations provided for clamped engagement with support feet, and the disposition of formations for receiving closet bowl mounting studs, there is provided a simple, rugged carrier in which the face plate may be inverted from one position to another thereby to be adapted to the mounting of either a four stud siphon jet type bowl or a three stud mounted blow-out type bowl, while preserving general simplicity of structure and installation procedures. Further for a wall hung water closet or analogous sanitary fixture, there is afforded "within-the-wall" support means minimizing the wall thickness or the chase space required within or behind the wall for the plumbing installation related to the water closets.

The hereinafter described structures avoid certain disadvantages of comparable type prior art with respect to the required space within the wall, complexity of structure or installation, limited adjustability in various directions, instability of fixture support, inability conveniently to handle both siphon jet and blow-out bowls and/or other wall hung type sanitary fixtures, such as women's urinals, and metal used in the carrier construction.

It is the general object of the present invention to provide, for wall hung water closet bowls or like sanitary fixtures, an improved carrier particularly of the type wherein a vertically adjustable face plate for the bowl connection branch of a soil line closet fitting also serves as part of a carrier combination.

Another object is the provision of an improved carrier arrangement of the type described wherein the face plate carrier element is invertible between two positions for mounting respectively a siphon jet bowl or a blow-out bowl.

A still further object is the provision of a face plate type carrier of the type described, minimizing the wall space or the chase space within a wall required for wall hung water closet bowl installations.

Other objects and advantages will appear from the following description and the drawings wherein:

FIG. 1 is a front view of a carrier face plate arrangement of the invention oriented for support of a siphon jet bowl, soil line structure being indicated by dashed outlines;

FIG. 2 is a side elevation corresponding to FIG. 1;

FIG. 3 is a front elevation, somewhat enlarged, of the face plate itself; and

FIG. 4 is a somewhat enlarged vertical longitudinal section taken as indicated by the line 4—4 in FIGS. 1 and 3.

In the drawings, wall structure is not shown, the dashed vertical line W representing the wall finish surface with respect to which, with slight spacing, there is mounted a sanitary fixture such as a toilet bowl X represented by the fragmentary dashed outline in FIG. 2; the solid horizontal line T representing the top surface of a floor or poured slab for the bath room; and soil line structure to which the water closet is connected being represented by the dashed outline SL of a soil line fitting, here a horizontal type as used for each successive bowl in a battery installation.

The soil line fitting could be the fitting shown, for example, in the Manas U.S. Pat. No. 2,932,037, wherein the bowl discharge connecting inlet branch **11** terminates in a vertically elongated opening surrounded by a sealing flange **12** against which is clamped a gasket-sealed fitting face plate, here the face plate B providing a carrier body, by bolt and vertical slot connections as hereinafter described

The face plate-carrier arrangement of the present invention is comprised of the face plate type carrier body B; the vertically adjustably attached, separate like buttress feet F secured at **13** by nuts and bolts; and an axially adjustable coupling sleeve or extension C secured and sealed to a face plate or body aperture as hereinafter described, by a lock nut and seal arrangement N, with outer end sealed to the fixture horn or outlet by a fixture gasket G in known or usual fashion; and, for a siphon jet bowl installation as here shown, four bowl -mounting stud assemblies M projecting forwardly from the plate perpendicular to and through the wall for the bowl support.

The feet are of an identical known form; each as an integral casting comprising a flat base **2** suitably perforated for anchor or bolt attachment to a floor or concrete slab, a rectangular vertical web **3** having a vertical longitudinal slot **4**, and a flange **5** tapering upwardly symmetrically about the plane of the web and buttressed by an external short strengthening gusset **6**; a point-to-point symmetry of the foot relative to a vertical center plane through the slotted web obviating need of right and left hand forms.

The roughly rectangular flat-backed body casting B is symmetrical about a vertical or longitudinal center plane (upon installation perpendicular to the wall), and the back surface **16** thereof is sealed through a gasket **17** to the front face of the fitting opening surrounding flange **12**.

For discussion, the casting may be considered as integrally comprising a thin generally rectangular main plate portion **15** having on the vertical center plane an inlet aperture surrounded by a short more or less cylindrical integral lip flange **18**, defining the inlet to the soil line fitting. Flange **18** (see FIG. 4) is male threaded to receive thereon the large open, correspondingly

female-threaded left end 19 of a lock nut N. The nut right end, reduced in diameter to an aperture 20, is straight (i.e., non-tapered) threaded to receive the straight threaded cylindrical coupling body 21, therein axially adjustable to set its right end enlargement 22 for making a compressive sealing connection with the bowl outlet through the interposed gasket G, by appropriate wrench or tool engagement in notches 22a.

As seen clearly in FIG. 4, a recess 24, defined by a relief groove and a shoulder between the threaded openings in N, receives an O-ring gasket or like seal 25 compressed endwise against flange 18 to seal the externally threaded body 21 thereto. The lock nut is secured by an anti-rotation set screw 27 threaded against the face plate body through one of a plurality of external integral wrench engagement lugs 28; the set screw being shown in top position in FIGS. 1 and 2, but in bottom position in FIG. 4.

The outline of face plate B varies from rectangular by having, as integrally cast projections, the oppositely extending thicker large lateral perforated respective foot-attaching ears 32 centered on the horizontal center plane of 18; the smaller laterally notched side ears 33 at the bottoms of the side edges; a central extension 34 on the bottom edge; and thick top corner formations 35, having a thickness about 2½ times that of 15 and extending laterally, and also upwardly beyond the main extent of the plate top margin, which has a shallow V-shape, centrally broadened at the apex by an external convex central extension 36 having the thickness of main plate portion 15.

The lateral edges are reinforced first by interrupted flanges 37 carrying the thickness of formations 35 and of lugs 33 almost to ears 32; the top edge, by thickening flanges 38 ascending from the inner sides of formations 35 to a more or less cylindrical central boss 39; and the bottom edge by a transverse flange 40 of like thickness with, and joining the bottom ends of, vertically elongated thickening pads 41. These pads, adjacent the side edge flanges, about double the local thickness of 15 to reinforce the plate regions penetrated by the respective vertically aligned pairs of elongated slots 42 for bolts 43 therethrough threaded into fitting flange 12 to clamp the face plate; the thickening represented by pads 41 being carried inwardly into each side of the aperture flange 18.

For receiving the studs of assemblies M, tapped holes with axes perpendicular to the plate are respectively provided on the vertical center plane in boss 39; at the centers of corner formations 35 equi-spaced from the center plane; and also, on the horizontal center plane of, and equi-spaced from the axis of the flanged aperture 18, in the regions where the front faces of lateral ears 32 extend beyond the side flanges 37 onto the pads 41 as arcuate boss-like formations 32b. The ears 32 near their outer ends also have apertures equi-spaced from the center plane for the foot securing bolts 13, preferably with square recesses in the outer face at least to accommodate part of a bolt head or nut thickness. The axes of the respective threaded holes have equal spacings in the vertical pairs and in the horizontal pairs corresponding to the standard back flange apertures of siphon jet bowls; and so also the lower horizontal pair (in the drawings) and that in boss 39 are spaced corresponding to the mounting apertures in blow-out bowls.

The lower notched ears 33 provide for flexibility in the carrier plate usage, being available, for example, for so-called "footless" installations, wherein the face plates of respective bowl installations in a battery are bolted to a common vertical leg or flange of a single angle iron anchored to the building floor or slab in the chase space. Further, a siphon jet installation, the longer top half of each ear 33 provides not only increased bearing surface for clamping to an angle iron, but also where feet are used (see FIG. 1) provides a projection somewhat overlapping the inner edge of the respective foot web at a point well below foot clamp bolt 13 to confer greater stability.

The extreme lateral edges or ends of the ear formations 32 are straight and vertical, that is parallel to the center plane of symmetry, and so also the lateral margins of the squared top formations 35; and the inward spacing of the bolt aperture center lines from the ends of the ears 32 are equal to the spacing of the foot slot center line from the foot flange 5. Hence, when a foot is bolted onto a corner formation or ear formation, engagement of the formation lateral edge with the foot flange prevents foot pivoting on the bolt and assures verticality of the foot in its bolted position.

With this arrangement, for the illustrated siphon jet position, feet may be bolted on either in front of or as here shown behind, the lateral ears. When the plate is used in the blow-out position inverted from that in the drawings, the feet are secured more closely spaced inwardly on and in front of the face plate, each by a bolt through the foot slot threaded into the tapped hole of the respective corner formation and the threaded holes on the horizontal center line of the inlet near the junctures of the ears and plate become the top bowl mounting stud receiving apertures; the boss formation 39 receiving the single central bottom stud.

The bottom projection 34 below flange 40, in a successively thinner stepped arrangement provides transversely elongated cut-off sections *34b*, *34a* of thickness successively decreasing from that of main section 15, with the bottom section *34a* transversely shorter than *34b;* and notches *34c* being formed at the ends of the intersections of, or successive step rises between *34a* and *34b* and *34b* and 40. This structure permits more rapid and clean removal, by hack saw, chiseling, simple break off or other means, of these sections, one or both by a single cut as might be desired at a particular siphon jet bowl installation, where because of desired low bowl height relative to a floor surface, the extension of the bottom plate beneath the bottom of the fitting flange would interfere with the installation.

We claim:

1. For a soil line fitting including an apertured face plate and a fitting body having a plumbing fixture discharge connection branch terminating in a vertically elongated opening surrounded by a flange to which the face plate is vertically adjustably clamped to, and with its back face sealed, to said flange, whereby the face plate inlet aperture may be set in communication with said opening at the desired height, from a building floor or slab, of a wall-hung plumbing fixture outlet to be connected to the soil line

a said face plate, in combination with fixture mounting studs secured to its front face, and with adjustable support feet secured to the face plate sides;

said face plate, as an integral casting symmetrical with respect to a longitudinal vertical plane therethrough, comprising:

a main plate

having a generally rectangular shape and a flat back face to be clamped to and sealed on said flange, and having said inlet aperture located eccentrically toward one plate end along said longitudinal center plane and surrounded by a threaded cylindrical lip flange on its front face,

said main plate having near each lateral margin a pair of aligned longitudinal slots for face plate clamping bolt means there-through engaged with the fitting flange,

lateral foot attaching ears extending from said main plate along a transverse center line through said inlet aperture,

each ear having a bolt aperture and terminating in an end edge engageable with a flange of a support foot bolted thereto at the said bolt aperture,

squared corner formations at the other plate end projecting laterally from the respective sides of the main plate,

a forwardly projecting boss formation located on the longitudinal center plane near the other plate end,

stud receiving tapped holes in respective said formations and, on said transverse center line, at the respective junctures of said ears with the main plate,

said tapped holes in said junctures and corner formations spaced from said center plane and from each other and the inlet aperture corresponding to the mounting stud flange apertures of a standard siphon jet bowl, and the tapped hole in said boss formation spaced from the inlet aperture corresponding to the spacing of the mounting flange bottom aperture of a blow-out type bowl whereby the face plate with studs in the juncture tapped holes may be installed in one or the other of the two relatively inverted positions respectively

for mounting a siphon jet type bowl with studs also in the corner holes, or

for mounting a blow-out type bowl with a third stud in said boss formation.

2. The combination of claim 1 including, as said support feet, like feet each integrally comprising:

a base portion securable to building environment, and an upright portion on the base and of T-shaped horizontal cross-section provided by

an elongated rectangular vertical web and a vertical flange centered on one edge of the web,

said web having a longitudinal foot clamping bolt receiving slot spaced from said flange a distance corresponding to the spacing of the foot clamping bolt receiving aperture from the end of a said ear;

the center spacing of the bolt receiving aperture from the end of each equal to the center spacing of the tapped hole in a corner formation from its lateral edge, whereby the feet may optionally be bolted to said ears or to said corner formations respectively for siphon jet or blow-out bowl installations; and

whereby engagement of an ear end with the flange of a foot bolted thereon prevents pivoting of the foot about the bolt.

3. The combination of claim 2, wherein

said face plate includes, near said one end of the main body plate portion thereof, oppositely projecting lateral lugs shorted than said ears and end-notched for receiving bolts, whereby optionally the face plate may be secured and supported on an angle iron anchored to a floor slab or the like;

each said lug having a length sufficient to overlap the web of a said support foot bolted on a respective ear when the face plate is oriented for siphon jet bowl support, thereby to afford increased stability of the bowl support.

4. The combination of claim 1, wherein

said main plate has, centered on the plate edge at said one end, a projection comprising at least two step formations elongated transversely of the plate and of successively decreasing thicknesses less than the main plate thickness, thereby to provide end sections easily removable from the face plate.

5. The combination of claim 4, wherein

said step formations successively decrease in transverse length away from the body plate edge,

and notches are provided at the opposite ends of the horizontal lines delineated by each rise from one step to another.

6. The combination of claim 1, wherein

said corner formations are markedly thicker than the said main plate;

and

said main plate includes as integral reinforcing thickening on its front face,

near each side edge, elongated pad formations in which said elongated clamping bolt slots are located,

said pad formations locally merging into the inlet aperture flange,

a bottom edge transverse flange extending between the bottom ends of the pad formations,

lateral edge flanges continuing the thickness of the corner formations toward said ears, and

at said other plate end, edge flanges converging from the respective corner formations to join said boss formation,

said stepped projection beginning outboard of said transverse flange,

7. The combination of claim 1, wherein

said face plate includes, near said one end of the main body plate portion thereof, oppositely projecting lateral lugs shorter than said ears and end-notched for receiving bolts, whereby optionally the face plate may be secured and supported on an angle iron anchored to a floor slab or the like;

each said lug having a length sufficient to overlap the web of a said support foot bolted on a respective ear when the face plate is oriented for siphon jet bowl support, thereby to afford increased stability of the bowl support.

8. The combination of claim 1, including

a coupling element whereby a gasketed outlet of a fixture bowl is connectable through said face plate aperture to the soil line,

the coupling element having at least one end straight threaded and smaller in diameter than the face plate inlet aperture to be receivable therein,

a gasketing ring about said element and against said aperture lip flange, a lock nut female-threaded at one end to receive said element axially adjustably threaded therethrough and at the other end to be received on said threaded aperture lip flange for supporting said element on the face plate and compressing said ring into sealing relation with said element and flange.

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