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F. M. GAY

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BASIN TYPE FLOOR FLANGE FOR WATER CLOSETS

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FIG. 1

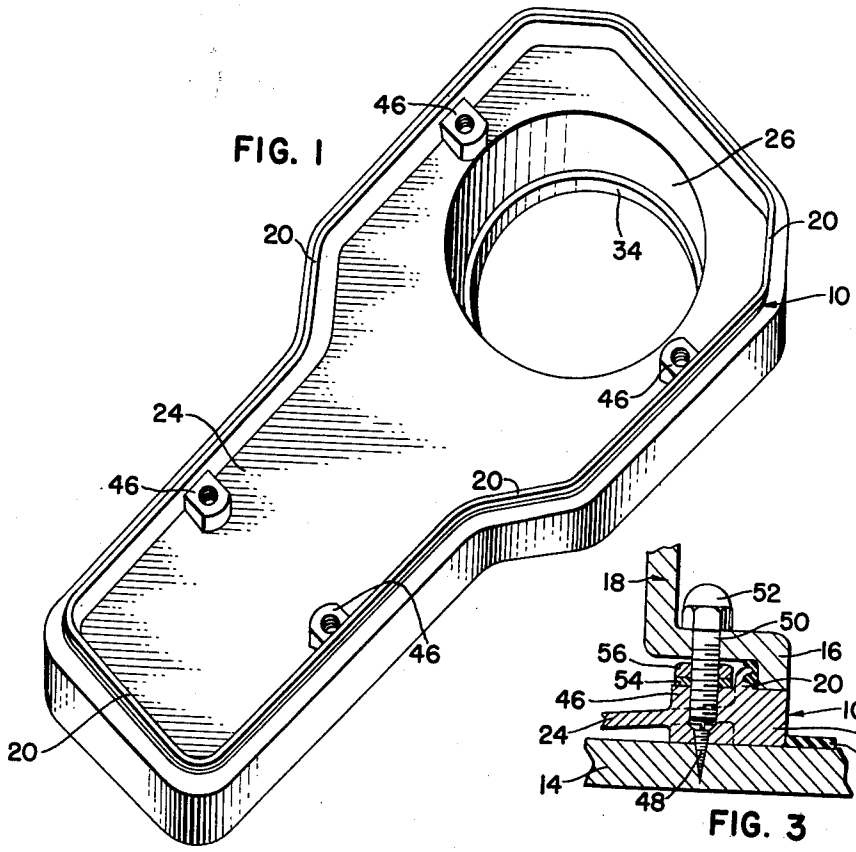


FIG. 3

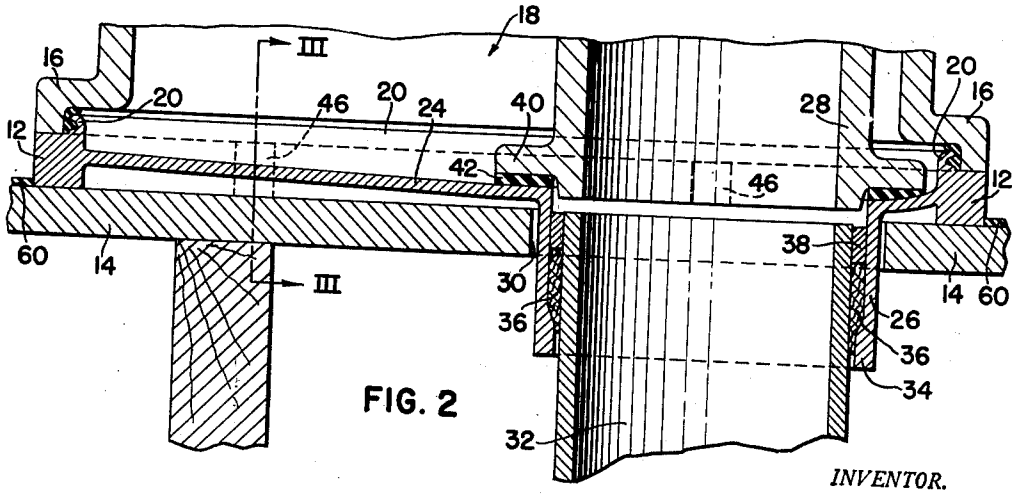


FIG. 2

INVENTOR.
FRED M. GAY

BY

Oldham & Oldham
ATTORNEYS

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BASIN TYPE FLOOR FLANGE FOR WATER CLOSETS

Fred M. Gay, Akron, Ohio

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12 Claims. (Cl. 4—252)

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This invention relates to a floor flange and sub-base for a water closet, and, more particularly, is concerned with a unit of this type which facilitates the provision of a permanently leak-proof mounting of a water closet on a bathroom floor and a connection of the closet to the soil pipe.

Heretofore, it has been the conventional practice to employ a so-called floor flange for securing a water closet to a soil pipe, the floor flange being adapted to be secured in leak-proof relation with the soil pipe and having other portions adapted to be connected in sealing relation with the water closet. The water closet itself is fastened to the floor and not to the flange. The floor flange is generally a round flange enclosed within the bottom edge flange of the water closet, and having nipple portions adapted to engage both with the soil pipe and the water closet.

Often a lead nipple is connected between the floor flange and the soil pipe. Although the floor flange connection as just described is theoretically fool-proof sooner or later a very large portion of the connections will leak. This is due to the settling of floors, the continued use of the water closet itself, faulty installation, and gradual breakdown of the sealing material. The result is wet, smelly, and rotted floors, and water damage to ceilings under second floor installations.

It is the general object of my invention to avoid and overcome the foregoing and other difficulties of and objection to known installations by the provision of an improved, relatively inexpensive and easily installed water closet sub-base in which connection between the water closet and the soil pipe is facilitated and in which the connection is leak-proof over substantially the life of the water closet.

Another object of my invention is the provision of a sub-base for simplifying and speeding up the mounting of a water closet on a floor, and which will function in leak-proof manner even though portions of the seals deteriorate in time.

Another object of my invention is the provision of a sub-base for mounting a water closet in association with a soil pipe, and wherein a shallow flanged basin is employed over the entire bottom area of the water closet, the basin terminating in a connector collar secured to the soil pipe whereby many of the leaks normally encountered in a floor flange type of mounting of a water closet are avoided and eliminated.

Another object of my invention is to provide a sub-base connector between a water closet and

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a soil pipe, with the sub-base connector facilitating the mounting of the water closet and at the same time providing an improved leak-proof connection between the water closet and the soil pipe.

The foregoing objects of my invention, and other objects which will become apparent as the description proceeds, are achieved by the provision in combination, of a water closet, an endless bottom edge flange on the water closet, a sub-base, an endless flange on the sub-base fitting under the bottom edge flange of the water closet, means on the sub-base for presenting the lateral displacement of the flanges on the water closet and the sub-base, means for sealing between the flanges, a relatively flat shallow basin in the sub-base extending from the endless flange inwardly and slightly downwardly, and a connector collar on the basin in alignment with the discharge opening of the water closet. Completing the combination are means for sealing between the discharge opening of the water closet and the top of the connector collar, a soil pipe received in and sealed to the connector collar, means on the sub-base for securing it to the floor, and means on the sub-base securing the water closet on the sub-base.

For a better understanding of my invention, reference should be had to the accompanying drawing wherein:

Fig. 1 is a prospective view of the improved sub-base of my invention in one particular embodiment thereof;

Fig. 2 is a longitudinal vertical cross-sectional view of the sub-base of Fig. 1 with a water closet being illustrated as mounted thereon; and

Fig. 3 is a vertical fragmentary cross-sectional view taken substantially on line 3—3 of Fig. 2.

In the drawings, the numeral 10 indicates generally one best known embodiment of the improved floor flange and sub-base of my invention, and including an endless flange 12 which is upstanding and adapted to engage at its bottom edge with a floor 14. The endless flange 12 is of the same shape in plan as the bottom edge flange 16 of a water closet indicated as a whole by the numeral 18.

The bottom edge flange 16 of the water closet 18 engages with the top edge of and is supported on the upstanding endless flange 12 of the sub-base 10, in the manner best seen in Fig. 2 around the endless peripheries of these flanges. To prevent lateral displacement of the flanges relative to each other I provide a rib 20 around the inner periphery of the top of the flange 12, and as likewise seen in Fig. 2, the rib 20 extends up

close by behind the inside of the flange 16. In the mounting of the water closet 18 on the sub-base 10 suitable sealing material of plastic nature is provided between the rib 20 and the water closet to effect a good fluid-tight connection between these parts. Note that the rib 20 along its laterally outside face is preferably formed with a re-entrant groove in which the sealing material lodges in locked position.

An important feature of my invention is that formed integrally with the endless upstanding flange 12 of the sub-base 10 is a relatively flat basin 24 which slopes downwardly and inwardly towards an integral connector collar 26 positioned in the basin 24 at a point opposite the discharge outlet 28 of the water closet 18.

The connector collar 26 is received down in an opening 30 in the floor 14, and is adapted to receive and surround the soil or I. P. S. pipe 32. The connector collar 26 is provided with a flange or shoulder 34 at its lower end which substantially touches the pipe 32, and suitable sealing such as oakum 36 and solidified molten lead 38 seals between the connector collar 26 and the pipe 32.

The outlet or discharge opening 28 of the water closet 18 is usually provided with a flat circular flange 40 which is preferably adapted to be engaged in sealing relation with the top of the connector collar 26, and this is achieved by the provision of a rubber or putty washer 42. However, it is within the concepts of my invention that no sealing washer 42 be employed as described, in which case the basin 24 and the sealing flange 20 are solely relied on for sealing, and I have found that with the installation illustrated and described the basin and flange alone do an excellent job. It may be within the discretion of the plumber installing the equipment whether the single or double seal is employed, but as noted, I usually prefer the double seal.

Formed integrally with the sub-base 10 are bosses 46 which receive wood screws 48 for securing the sub-base 10 to the floor 14. Likewise, the bosses 46 receive threaded studs 50 which extend up through horizontal flange portions of the water closet 18 as best seen in Fig. 3, the studs being capped by cap nuts 52 for securing the water closet 18 to the sub-base 10. If desired, in order to lock the stud 50 in position a lead washer 54 may be positioned over each stud above the boss 46 and a half nut 56 can be used to clamp the washer and the stud tightly in position. In the drawings, linoleum or other floor covering 60 is shown completing the installation.

From the foregoing, it will be recognized that the various objects of my invention have been achieved by the provision of a relatively simple, and inexpensive sub-base which greatly speeds up and facilitates the mounting of a water closet upon a bathroom floor and in sealed relation with a soil pipe. The sub-base is generally made of a high-grade cast iron, and may be appropriately enameled or porcelainized on the outer surface of the upstanding flange 12. The securing of the sub-base to the floor, in the manner described, followed by the attachment of the water closet to the sub-base makes for a considerably improved and rigid installation which will function in leak-proof manner substantially for the life of the water closet, and often regardless of sagging floors. Should any leak develop at the seal 40 and water escape out to the basin 24 the seal provided between the flanges 12 of the sub-base and 16 of the water closet prevents any leakage

of the connection. Also, the normal drainage from the flat sloping basin 24 is such that water will flow back to the connector collar 26 and out the soil pipe 32 once the pressure of the water flushing operation is removed.

While in accord with the patent statutes, I have specifically illustrated and described one best known embodiment of my invention, it is to be particularly understood that I am not to be limited thereto or thereby, but that the scope of my invention is defined in the appended claims.

I claim:

1. A floor flange and sub-base for a water closet including an endless upstanding edge flange adapted to rest on the flooor and adapted to receive and support the edge base flange of the water closet, a drain basin formed integrally with the upstanding flange and sloping inwardly and downwardly from the upstanding flange, the lower surface of the drain basin being above the lower surface of the edge flange, a connector collar formed integrally at the bottom of the basin and adapted to extend downwardly through a hole in the floor adapted to receive and surround in sealing relation a soil pipe, bosses formed integrally with the upstanding flange and adapted to receive screws for securing the sub-base to the floor, said bosses being apertured and adapted to receive studs for securing a water closet to the sub-base.

2. A floor flange and sub-base for a water closet including an endless upstanding solid support flange adapted to rest on the floor and adapted to receive and support the edge base flange of the water closet, a locating rib on the upper surface of said flange, a drain basin formed integrally with the upstanding flange and sloping inwardly and downwardly from the upstanding flange, a connector collar formed integrally at the bottom of the basin and adapted to extend downwardly through a hole in the floor adapted to receive and surround in sealing relation a soil pipe, and means formed integrally with the upstanding flange and adapted to receive screws for securing the sub-base to the floor, said means having threaded portions positioned laterally inwardly of said upstanding flange for receiving screw means for securing a water closet to the sub-base.

3. In combination, a water closet, an endless bottom edge flange on the water closet, a sub-base coextensive in size with the bottom flange of the water closet and separate from the water circulation in the water closet, an endless flange on the sub-base fitting under the bottom edge flange of the water closet, means on the sub-base for preventing the lateral displacement of the flanges on the water closet and sub-base, means sealing between the flanges, relatively a flat shallow basin in the sub-base extending from the endless flange inwardly and slightly downwardly, a connector collar on the basin in alignment with the discharge opening of the water closet and the top of the connector collar, the water closet discharging directly into the collector collar, a soil pipe received in and sealed to the connector collar, means engaging the sub-base for securing it to the floor, and means engaging the sub-base for securing the water closet to the sub-base.

4. In combination, a water closet, an endless bottom edge flange on the water closet, a sub-base, an endless flange on the sub-base fitting under the bottom edge flange of the water closet, means on the sub-base for preventing the lateral

displacement of the flanges on the water closet and sub-base, means sealing between the flanges, a relatively flat shallow basin in the sub-base extending from the endless flange inwardly and slightly downwardly, the lower surface of the drain basin being above the lower surface of the edge flange, a connector collar on the basin in alignment with the discharge opening of the water closet, means sealing between the discharge opening of the water closet and the top of the connector collar, and a soil pipe received in and sealed to the connector collar.

5. In combination, a water closet having a discharge opening, an endless bottom edge flange on the water closet, a sub-base, an endless flange on the sub-base fitting under and supporting the bottom edge flange of the water closet, rib means on the endless flange of the sub-base to prevent lateral displacement of the water closet on the sub-base, an integral relatively flat shallow basin in the sub-base extending from the endless flange inwardly and slightly downwardly, a connector collar on the basin in alignment with the discharge opening of the water closet for receiving fluid directly therefrom, and a soil pipe received in and sealed to the connector collar, means engaging the sub-base for securing it to the floor, and means engaging the sub-base for securing the water closet to the sub-base.

6. A combination as in claim 3 wherein the laterally outer surface of the sub-base endless flange is exposed, and means seal the discharge opening of the water closet to the sub-base adjacent the connector collar which is integral with the sub-base.

7. A combination as in claim 3 wherein the last two named means include bosses positioned inwardly of the sub-base endless flange, which bosses include apertures extending therethrough from the water closet engaging surface of the sub-base to the floor engaging surface thereof, and wherein both means securing the sub-base to the floor and the means securing the water closet to the sub-base are received in the apertures.

8. Apparatus as in claim 2 wherein the means include apertures extending through the sub-base in a direction normal thereto and adapted to receive floor engaging means in the lower portions of the apertures which have screw engaging shoulders therein, the upper portions of the same apertures having said threaded portions therein for engaging screw means to secure a water closet to the sub-base.

9. In combination, a water closet, an endless bottom edge flange on the water closet, a sub-base coextensive in size with the bottom flange of the water closet and separate from the water circulation to the water closet, an endless flange on the sub-base fitting under and engaging the bottom edge flange of the water closet, means for preventing lateral displacement of the flanges of the water colset and sub-base when engaged, a relatively flat shallow basin in the sub-base extending from the endless flange inwardly and slightly downwardly, a connector collar on the basin in alignment with the discharge opening of the water closet so that the water colset discharges directly into the collector collar, a soil pipe received in and sealed to the connector collar, bosses on the sub-base positioned inwardly

of the sub-base endless flange, which bosses include apertures extending therethrough from the water closet engaging surface of the sub-base to the floor engaging surface thereof, means engaging the bosses and securing the sub-base to the floor, and means engaging said bosses and securing the water closet to the sub-base.

10. In combination, a water closet having a discharge opening in the bottom thereof, an endless bottom edge flange on the water closet, a sub-base coextensive in size with the bottom flange of the water closet and separate from the water circulation to the water closet, an endless flange of the sub-base fitting under and engaging the bottom edge flange of the water closet, rib means on the sub-base for preventing lateral displacement of the flanges of the water closet and sub-base when once engaged, means sealing between the flanges, a relatively flat shallow basin in the sub-base extending from the endless flange thereof inwardly and slightly downwardly, a connector collar on the basin alignment with the discharge opening of the water closet, the water closet discharging directly into the collector collar, a soil pipe received in and sealed to the connector collar, means securing the sub-base to the floor, means securing the water closet to the sub-base, and means sealing the discharge opening of the water closet to the sub-base adjacent the connector collar, the connector collar being integral with the sub-base.

11. A combination as in claim 10 wherein the sub-base securing means include bosses positioned inwardly of the sub-base endless flange, which bosses include apertures extending therethrough from the water closet engaging surface of the sub-base to the floor engaging surface thereof, and wherein the means securing the sub-base to the floor engage the lower portion only of the bosses and the means securing the water closet to the sub-base include screw means engaging the water closet and in threaded engagement with the top portions only of the bosses on the sub-base.

12. A combination as in claim 10 wherein the sub-base to water closet securing means include threaded recess means extending into the sub-base from the upper surface thereof, and wherein the securing means include cap screw means engaging the water closet and in threaded engagement with said recess means.

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