Dec. 18, 1923. 1,477,560

J. P. HEENEY

FLOOR CONNECTION FOR SOIL PIPES AND THE LIKE

Filed Aug. 5, 1921

Fig. 1.

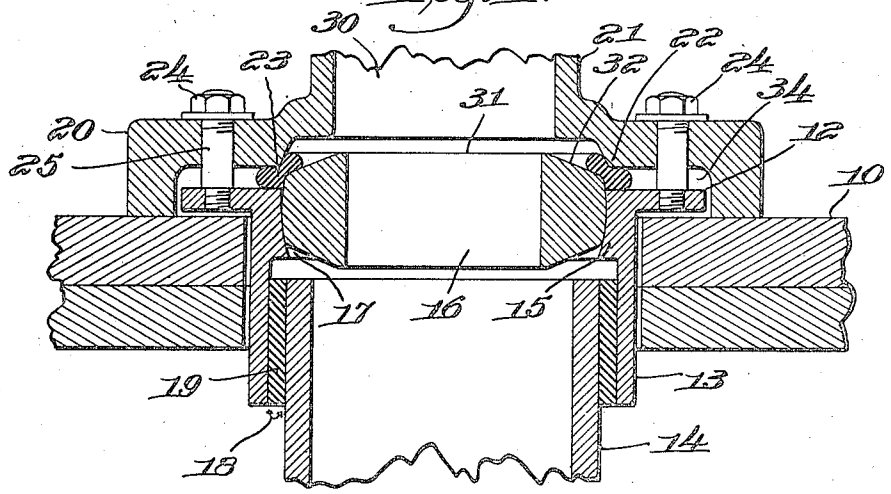
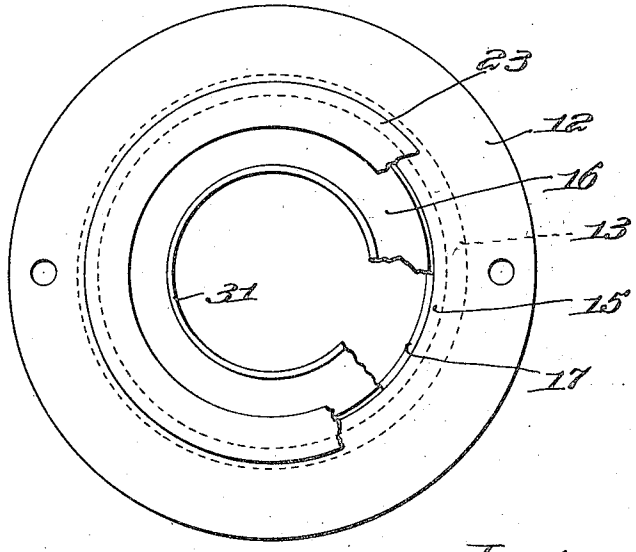


Fig. 2.



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Patented Dec. 18, 1923. 1,477,560

UNITED STATES PATENT OFFICE.

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FLOOR CONNECTION FOR SOIL PIPES AND THE LIKE.

Application filed August 5, 1921. Serial No. 490,047.

To all whom it may concern:

Be it known that I, JOSEPH P. HEENEY, a citizen of the United States of America, and a resident of Medford, in the Commonwealth of Massachusetts and county of Middlesex, have invented certain new and useful Improvements in Floor Connections for Soil Pipes and the like, of which the following is a specification.

This invention relates to floor connections for soil pipe and the like and more particularly to that class used to make tight joints between water closet bowls and the soil pipe therefor. An object of the invention is to produce a connection that is simple and effective and that does not require a nicety of adjustment to enable it to be properly secured in operative position.

A further object of the invention is to produce a compensating means intermediate the bowl or other receptacle or pipe and the soil pipe, which readily adjusts itself in such manner that the packing or gasket coacting therewith will afford a true and tight seat for the part that is intended to abut therewith and thereby form a strictly water-tight joint.

A still further object of the invention is to produce a connection that does not require the highest degree of skill to install, that does not require great accuracy as to the length of soil pipe which is to be inserted in the connection, that it is not necessary for the soil pipe to be in anything better than fair alignment with the connection to allow of a perfect joint being made.

Another object of the invention is to produce a connection that is capable of first being temporarily assembled to insure a proper setting and tight joint and which may thereafter be partly dismembered to permit of a permanent securing means being supplied as for instance the lead and oakum caulking of the joint between the floor flange and the soil pipe.

Heretofore floor connections have been used which required considerable ingenuity and patience on the part of the workman to install them, as in some instances it was necessary for the soil pipe to extend above the floor a prescribed distance, no more, no less, and it was also necessary to thread the soil pipe to receive a flange which was intended as an adjustment, to approximately position the gasket mounted thereon, to its proper height, and it was also necessary that the soil pipe be plumb.

In the above instance for best results it was necesary that the soil pipe should extend an exact distance above the floor and it was further necessary for the soil pipe to be absolutely plumb. And furthermore, it was necessary that the floor be level, as also the face of the bowl base, and finally that the portion of the bowl contacting with the gasket be true.

If these conditions did not exist, it was impossible to make a tight joint between the bowl and the soil pipe, and it will be readily seen that it required skill and patience to assemble the connection and the bowl in a satisfactory manner.

The present invention greatly simplifies the installation of the connection as well as reduces the cost of production. It is not requisite that exact measurement must be followed nor does it matter as to the perfect level of the floor, the base of the bowl, or the precise amount the soil pipe extends into the floor flange, or whether or not the soil pipe is plumb.

A simple and inexpensive compensating means being employed which automatically adjust itself to take care of any inequalities of the bowl where it contacts with the gasket, and as its action does not depend upon the alignment of the soil pipe but is independent thereof, it will be readily seen that so long as it is possible to caulk the soil pipe and floor flange joint, the exact alignment of the two is not necessary in assembling the bowl and soil pipe and making a tight joint therebetween.

The invention further consists in certain novel features of construction and method of assembling that will be fully understood from a description of the drawings and the claims hereinafter given.

Of the drawings:

Fig. 1 represents a vertical transverse section through a connection and the lower and upper portions of a water closet bowl and soil pipe respectively.

Fig. 2 a top plan view of the parts shown in Figure 1, the bowl being removed and certain of the remaining parts being broken away for clearness.

Referring to the drawings:

The floor 10 is or may be of wood, concrete, tile or similar material having a hole

11 therethrough to receive a floor flange 12 having the depending cylindrical body portion 13 adapted to receive the upper end of a soil pipe 14. An internal flange 15 is provided, and so shaped as to receive and support a rockable member 16, which in this instance acts in conjunction with the said flange 15 to form a compensating means. The said compensating means shown is extremely simple and effective, the ring 16 being preferably of cast metal and not necessarily finished while the seat 17 in the flange 15 may be finished or not so long as it is of a shape to receive and retain the said ring and permit the rocking thereof.

As is usual in coupling two pipe-like members together by caulking, the cylinder 13 is of greater diameter than the soil pipe 14, a space 18 being left between the two to provide for the reception of said caulking 19.

The bowl herein partly shown and familiar to the trade has a base 20 and an upwardly extending cylindrical portion 21.

The base has depressions therein which form an annular shoulder 22 and which in this instance forms a convenient abutment for the gasket 23 carried by the compensating ring 16.

It is not essential that the floor 10 shall be perfectly level nor that the face of the base 20 or the shoulder 22 shall be level or absolutely smooth as it is possible with the present invention to have all these defects present, and yet accomplish the perfect water tight joint required.

The method of assembling the parts is considered novel and consists in first packing a quantity of oakum or similar material in the space 18 in such quantity and to such a degree as to later permit longitudinal and tilting movement between the cylinder 13 and the soil pipe 14. Ordinarily the said soil pipe is firmly secured and therefore stationary so that movement of the cylinder 13 only will take place when necessary to attain the proper position for the gasket 23. The ring 16 and its gasket 23 are now put in position and the bowl also, whereupon the nuts 24 are set up sufficiently to cause the gasket to be raised and become well seated at the shoulder 22.

To accomplish the raising of the gasket, bolts 25 are secured to the flange 12 and as bowl 20 rests on the floor the nuts upon being set up draw the flange, gasket and ring 16 upwardly until perfect contact is made between said gasket and said shoulder 22. It will be understood that the temporary packing will permit of the longitudinal and tilting movement, if necessary, of the flange 12, and when so moved to its proper position will retain it there. During the temporary setting up process the flange 12 will be drawn upwardly and may be tilted one way or the other to compensate for any unevenness of the floor, base of the bowl, or if the soil pipe should not be plumb, as the temporary and comparatively loose packing permits of this action.

So too if the annular shoulder 22 should not be in a plane parallel with that of the floor or base face, the ring carrying the gasket will rock or tilt until a perfect seat and consequently seal is obtained. The preliminary adjustment having been made, the bowl, flange and gasket will now be removed and the usual permanent packing applied to the space 18 between the flange cylinder 13 and the soil pipe 14.

The bowl, gasket and ring may now be placed in position and the nuts 24 set up the required amount to insure a water-tight seal between the bowl 20 and the flange 12, and at the same time secure the bowl to the floor and the soil pipe 14.

The ring 16 may be so constructed as to aid in the detection of a leaky gasket or one where, through age or deterioration, has become leaky and does not form a perfect seal.

For the above purpose the ring is made with its inside diameter slightly smaller than the diameter of the opening 30 in the bowl base 20 and prefereably the top face 31 is inclined as at 32. The ring thus formed will cause some of the liquid flowing from opening 30 to be diverted from its course and will fill the space 33 and consequently if there is a leak between the shoulder 22 and gasket 23 the liquid will find its way past the gasket into the space 34 and out under the face of base 20 to the floor beyond. If deemed necessary a gasket or packing of cellulose or similar material might be placed intermediate the flange 12 and the floor 10 to obviate the possibility of leakage through the hole 11.

It is not the intention to limit this invention to the precise construction and arrangement shown as it is obvious that the same might be changed without departing from its spirit and scope.

Having described the invention I claim:

1. In a device of the class described, a receptacle having an opening therein; a pipe adapted to coact with said opening for the passage of liquid therethrough; a gasket intermediate said opening and said pipe; and a compensating annulus intermediate said opening and said pipe whereby said gasket is compelled to perform its intended function, said annulus having an internal diameter smaller than said opening for the purpose described.

2. In a device of the class described, a receptacle having an opening therein; a pipe adapted to coact with said opening for the passage of liquid therethrough; a gasket adapted to form a seal around said opening; a member coacting with said gasket to form said seal; and means whereby said member

may move relatively to said pipe during the formation of said seal, said member comprising an annulus having an internal diameter smaller than the said opening for the purpose described.

3. In a device of the class described, a receptacle having an opening therein; a pipe adapted to coact with said opening for the passage of liquid therethrough; a gasket intermediate said opening and said pipe; a member adapted to be initially loosely secured to said pipe for the purpose of adjustment and thereafter firmly secured thereto; a seat in said member; and a compensating means, adapted to rock in said seat, said means coacting with said gasket to form a tight seal around said opening.

4. In a device of the class described, a receptacle having an opening therein; a pipe adapted to coact with said opening for the passage of liquid therethrough; a gasket intermediate said opening and said pipe; a shoulder adapted to seat in said gasket; a ring adapted to support said gasket; a flange adapted to be initially loosely secured to said pipe during the first assembling of said receptacle and pipe for the purpose of adjustment and thereafter rigidly secured thereto; and means whereby said ring and said flange may move relatively.

5. In a device of the class described, a water closet bowl having an outlet thereto; a soil pipe adapted to coact with said outlet for the passage of liquid therethrough; a floor flange adapted to be initially loosely secured to said soil pipe for the purpose of adjustment between said receptacle and said pipe and thereafter rigidly secured thereto; a ring tiltably mounted in said flange; a gasket carried by said ring and adapted to form a seal around said outlet; and means to retain said bowl and said soil pipe in operative position.

6. The method of assembling a water-closet bowl, floor flange, compensating means carried thereby, and soil pipe, and effecting a water-tight seal therebetween, consisting of first applying a temporary packing between said soil pipe and the body of said flange and placing bowl in position to be secured; drawing the flange home by means of bolts extending therefrom and nuts provided therefor, to the necessary extent to make a perfect fitting of the parts, and thereafter removing said bowl and compensating means and applying usual water-tight joint packing between said floor flange and said soil pipe, allowing said temporary packing to remain.

7. In a device of the class described a receptacle having an opening leading therefrom; a pipe adapted to coact with said opening for the passage of liquid therethrough; a flanged cylinder intermediate said receptacle and said pipe a compensating medium mounted in said cylinder; a gasket interposed between said medium and said receptacle adapted to form a seal around said opening; said cylinder being so arranged as to be temporarily and yieldingly secured to said pipe for the purpose of accommodating itself laterally and longitudinally relatively to said pipe during the initial assembly of said receptacle and pipe and thereafter permanently and rigidly secured thereto.

8. In a device of the class described a receptacle having an opening leading therefrom; a pipe adapted to coact with said opening for the passage of liquid therethrough; a flanged cylinder intermediate said receptacle and said pipe; a ring capable of being tilted carried by said cylinder; a gasket interposed between said receptacle and said ring adapted to form a seal around said opening; said cylinder being adapted to be temporarily yieldingly secured to said pipe whereby lateral and longitudinal movements relatively to said pipe may be made by said cylinder when said receptacle and said pipe are being assembled for the first time to attain the proper adjustments, and thereafter permanently and rigidly secured thereto prior to the second and final assembling of said parts.

9. In a device of the class described a receptacle having an opening leading therefrom; a pipe adapted to coact with said opening for the passage of liquid therethrough; a flange cylinder adapted to assume axial angular relationship with said pipe; a ring capable of being tilted mounted in said cylinder; and a gasket interposed between said cylinder and said receptacle.

10. In a device of the class described a receptacle having an outlet leading therefrom; a pipe adapted to coact with said opening for the passage of liquid therethrough; a flange cylinder adapted to assume axial angular relationship with said pipe, and adapted to be rigidly secured thereto in such position; a ring capable of being tilted and having an internal diameter smaller than said opening mounted in said cylinder; a gasket intermediate said receptacle and said ring adapted to form a seal around said opening; and means such as bolts adapted to secure said flange cylinder and said receptacle.

Signed by me at Boston, Mass., this 3rd day of August, 1921.

JOSEPH P. HEENEY.