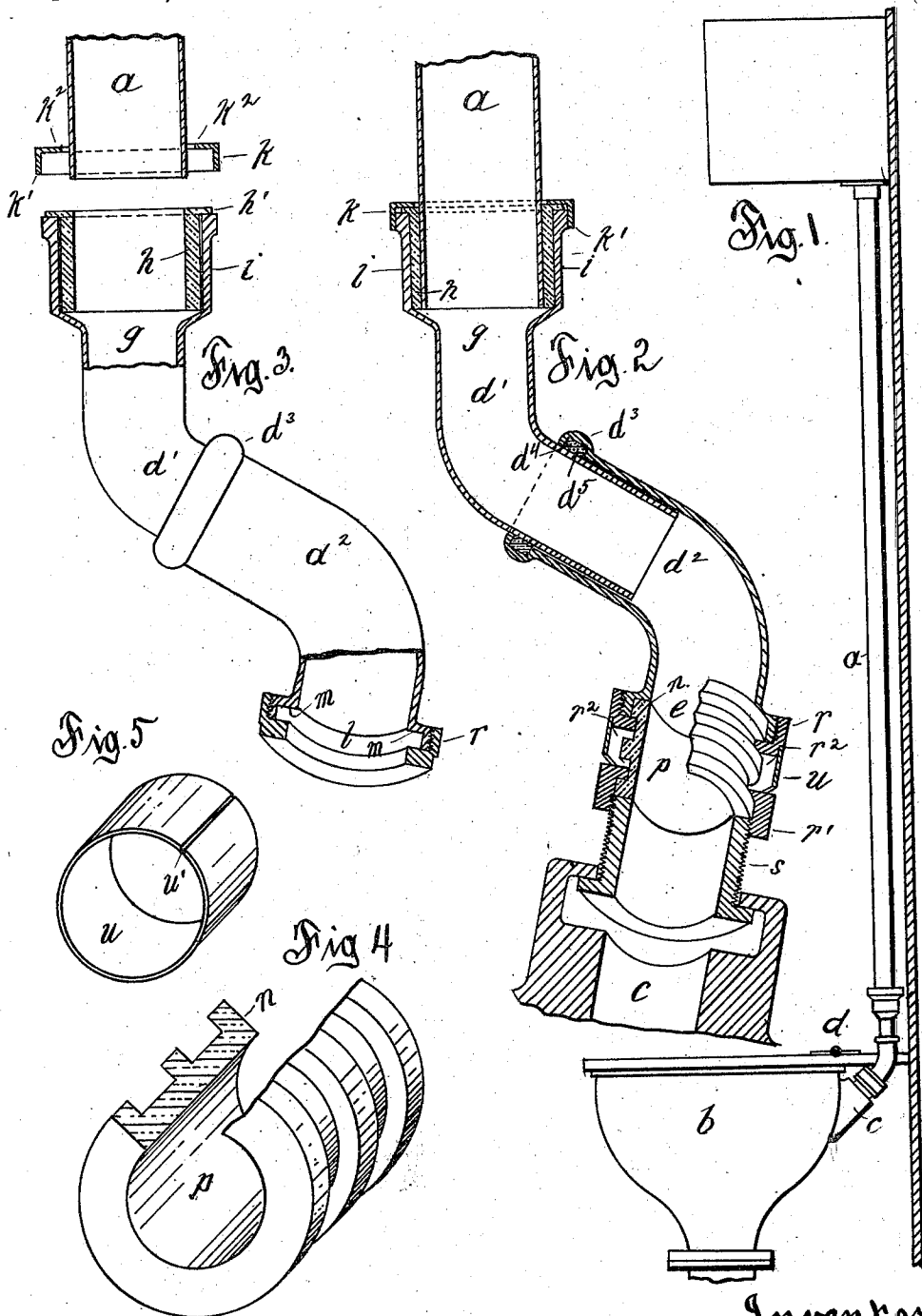


(No Model.)

J. J. RICKETTS.
WATER CLOSET CONNECTION.

No. 566,470.

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Witnesses:
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UNITED STATES PATENT OFFICE.

JAMES J. RICKETTS, OF PITTSBURG, PENNSYLVANIA.

WATER-CLOSET CONNECTION.

SPECIFICATION forming part of Letters Patent No. 566,470, dated August 25, 1896.

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To all whom it may concern:

Be it known that I, JAMES J. RICKETTS, a resident of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Water-Closet Connections; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to connections from pipes to earthenware and like bowls. An efficient connecting device between supply-pipes and bowls heretofore employed has been a rubber or like flexible connecting-tube, of angular or other shape, according to the circumstances, which, by yielding in case of the movement of either the bowl or pipe, would relieve the strain on the earthenware bowl, and so prevent the fracture of same. At the present time, for sanitary reasons, it is customary to have all the connecting-pipes exposed to view, in order to give easy access for repair, power to discover leakage, and ease in cleaning. For the higher class of work it is desirable to have all the exposed parts apparently formed of metal, and to accomplish this metallic sleeves or coverings for the rubber or like connecting-tubes have been employed. These have proven satisfactory, except where on account of the peculiar shapes of the connecting parts it is difficult to apply such metallic sleeves, while in some cases such sleeves increase the diameter of the outer body of the connection to such an extent as to destroy the symmetry of the connections.

One of the objects of my invention therefore is to provide a connection between the supply and discharge pipes and the water-closet bowl, which in the main portion is formed of metal, and yet one which possesses the requisite flexibility at its ends, the rubber which gives such flexibility being entirely concealed from view.

A further object of my invention is to provide for the turning of the metallic sleeve, so that its ends may be connected up to a right or left hand closet, as the case may be.

To enable others skilled in the art to make and use my invention, I will describe the same more fully, referring to the accompanying drawings, in which—

Figure 1 is a view of a siphon-closed bowl

and a supply-pipe leading thereto and the connecting device between the bowl and supply-pipe. Fig. 2 is a sectional view of the connecting device, pipe, and the horn of the bowl, showing its connections with the supply-pipe and horn. Fig. 3 is a view of the connecting-pipe with the rubber sleeve in the bowl thereof and the supply-pipe above the same, illustrating the peculiar connecting-joint employed between the supply-pipe and connecting-pipe and showing the method of making the joint between the two pipes. Fig. 4 is a view of the rubber tube employed between the connecting-pipe and spud. Fig. 5 is a view of the split ring or sleeve.

Like letters of reference indicate like parts in each of the figures.

Though the improved connecting device may be employed between the supply-pipe and any form of closet and, where applicable thereto, between the bowl and discharge-pipe, as in urinals, bath-tubs, &c., the most difficult form of connection and that to which the invention is especially applicable is the siphon-closet connections, such as illustrated in the drawings, where the supply-pipe extending from the tank to the bowl is out of line with the center of the bowl and the communication with the bowl is on an incline, this requiring a peculiar connecting-pipe, having an obtuse angle or elbow at each end thereof.

In the drawings, *a* is the supply-pipe; *b*, the bowl, having the horn *c*, with which the connection is to be made. The metallic connecting-pipe *d* is preferably formed in two pieces *d'* *d''*, the section *d'* having the vertical portion *g*, which communicates with the supply-pipe *a*, and the section *d''* having the portion *e*, inclined corresponding to the horn *c*. The section *d'* is of smaller diameter than the section *d''* and a telescope joint is formed between said sections. The section *d''* has a slight annular enlargement *d'''* formed thereon, and in the interior of said section, coincident with said enlargement, is formed the annular groove *d⁴*. Within this groove *d⁴* a gasket *d⁵*, of rubber or other suitable material, is inserted. The gasket extends slightly beyond the groove *d⁴*, so that when the section *d'* is inserted within the section *d''* a very close watertight joint is formed between the two sections. However, the joint between the two sections

d' d^2 is not so tight but that the sections are free to turn, the one within the other. In this way the section d^2 may be turned to bring its inclined position e to correspond to the horn of the closet, whether said horn be on the right or left side. The construction obviates the necessity of the dealers carrying two styles of the metallic sleeves, one for right and one for left hand closets. These sections d' d^2 are cast to shape, being generally formed of brass and finished and polished, and, if desired, nickel-plated, so as to form part of the exposed pipe connections to the closets.

To form the flexible joint between the supply-pipe and the connecting-pipe, I employ the rubber or like sleeve h , which fits within the socket at the upper end of the section d' and has a flange h' extending over the edge of the socket and which receives the end of the supply-pipe a . As shown in Fig. 3, this rubber sleeve fits loosely in the socket i , its flanges h' forming a means of suspending the sleeve in the socket. It will also be noticed that the rubber or like elastic sleeve h has straight inner and outer walls up to the flange h' , which extends out over the edge of the socket. The end of the supply-pipe is also straight and of the same exterior diameter throughout. It will also be noticed in said figure that the interior of the sleeve is of smaller diameter than the exterior of the supply-pipe, this being intentionally constructed in this way, so that when the supply-pipe is forced into the sleeve h it expands the same against the inner wall of the socket i , the rubber being compressed between the supply-pipe and socket and a tight joint sufficient to resist ordinary pressure, or at least sufficient to resist the pressure of the water flowing from the tank, being thus obtained. It is found that the joint so formed by the expanding of the rubber sleeve by the insertion of the tube holds so tightly that it cannot be withdrawn by a direct pull, and forms a sufficiently strong union between the pipe and socket to support the connecting-pipe in proper position, a neat and simple form of joint which does not require either the threading or weakening of the supply-pipe or the socket being thus obtained, and a joint being obtained which has sufficient flexibility while maintaining a tight joint to permit of all necessary movement between the connecting-pipe and supply-pipe. The rubber sleeve and its flange h' can be covered and concealed by the ferrule k , which is made with the cylindrical portion k' fitting around the upper end of the socket and the inwardly-extending flange k^2 , which extends over the rubber sleeve and conceals the same, said flange, however, not bearing upon the supply-pipe, but leaving sufficient space between the supply-pipe and its inner edge to permit of all necessary flexion of the joint while concealing the rubber sleeve which gives flexibility thereto.

Between the section d^2 and the horn of the closet any suitable form of flexible joint may be employed, and for that purpose I have illustrated a joint which is constructed as follows: At the lower end of the section d^2 is the mouth l , and on the interior of this mouth is formed an annular seat m , corresponding in shape to the flange n on the short rubber tube p , the rubber tube being connected to the pipe by a threaded nut r , screwing onto the pipe and compressing the flange in the seat m . The opposite end of the rubber tube is connected to the spud s by a like nut r' , and the spud enters within and forms a tight joint with the horn of the closet. To conceal this rubber tube, I employ a short metal sleeve u , which slips over the mouthpiece l of the connecting-pipe, being slipped upon the same before the connection is made, and after such connection is made draw off the mouthpiece in position to cover the rubber tube p . This short metallic sleeve fits loosely over the part to be concealed by it and may be held in place by seat r^2 in the nut r , or by other suitable means. This sheet-metal sleeve may be formed of spring sheet metal, and, if desired, divided longitudinally, as at u' , so that it can easily be slipped from the socket around the rubber tube. As shown in the drawings, the nut r has an annular seat r^2 to receive the sleeve and hold it in place.

In making the joint such as above described after the closet and such pipe have been properly adjusted and secured in place the sheet-metal sleeve u is slipped over the mouthpiece l . The rubber sleeve h is then either placed within the socket i of the section d' or expanded around the lower end of the supply-pipe a , the ferrule k having been first slipped onto said supply-pipe, and the supply-pipe is forced into the rubber sleeve while the sleeve is confined within the socket i , being forced into and expanding said rubber sleeve against the socket until a sufficiently-tight joint between the parts is obtained and the flange h' of the rubber sleeve is brought down upon the socket. The ferrule k is then dropped to place, fitting onto the socket. The rubber tube is then connected to the pipe d and the horn c , as above described, and the sleeve u drawn over the rubber tube, when the joint is completed. When in use, in case of movement either of the closet or of the supply-pipe, either from the settling of the floor or wall or from other causes, the two flexible joints by means of which the metallic connecting-pipe is united to the supply-pipe and bowl will yield sufficiently to permit of such movement without closing the waterway or bringing any unusual strain upon the horn of the closet, the two joints giving all the flexion necessary to protect the earthenware bowl from injury, and a neat connection between the supply-pipe and earthenware bowl is thus obtained, which has the appearance of a metallic connection, which, as above stated, is very de-

sirable for all exposed work, containing all the advantages of a flexible joint, and one by which an irregular shape of connection may be easily provided for.

5 What I claim as my invention, and desire to secure by Letters Patent, is—

1. In combination with a bowl and a supply or like pipe, a metallic connecting-pipe, flexible connections between the supply-pipe 10 and connecting-pipe and between the connecting-pipe and bowl, and covering metallic sleeves extending over, fitting loosely on, and concealing the flexible connections, substantially as set forth.

15 2. In combination with a metallic pipe having a socket at one end thereof, a rubber or like elastic sleeve having straight and parallel inner and outer faces and fitting loosely in said socket, a metallic pipe having straight 20 and parallel outer faces of greater exterior diameter than the interior diameter of the rubber sleeve, and a metallic ferrule fitting around the socket and having a flange extending inwardly over the sleeve, substantially as set forth.

25 3. In combination with a metallic pipe having a socket at one end thereof, a rubber or like elastic sleeve fitting loosely in said socket and having an annular flange at its outer end extending over the edge of the socket, a metallic pipe of greater exterior diameter than

the interior diameter of the rubber sleeve adapted to enter the same and expand it against said socket, and a metallic ferrule fitting around the socket and having a flange 35 extending inwardly over the rubber sleeve, said ferrule fitting neatly on the socket but loosely around the pipe entering the rubber sleeve, substantially as set forth.

4. A metallic connecting-pipe for connecting up the supply-pipe of a water-closet with the bowl composed of two sections, each of said sections consisting of an inclined body portion and an end piece turned at an angle thereto, said sections having a non-threaded 45 rotary connection with each other, substantially as set forth.

5. A metallic connecting-pipe for connecting up the supply-pipe with the bowl composed of two sections, each of said sections 50 consisting of an inclined body portion and an end piece turned at an angle thereto, one of said sections having a flexible gasket secured therein, and the other section entering said first-mentioned section, substantially as set 55 forth.

In testimony whereof I, the said JAMES J. RICKETTS, have hereunto set my hand.

JAMES J. RICKETTS.

Witnesses:

ROBT. D. TOTTEN,
ROBERT C. TOTTEN.