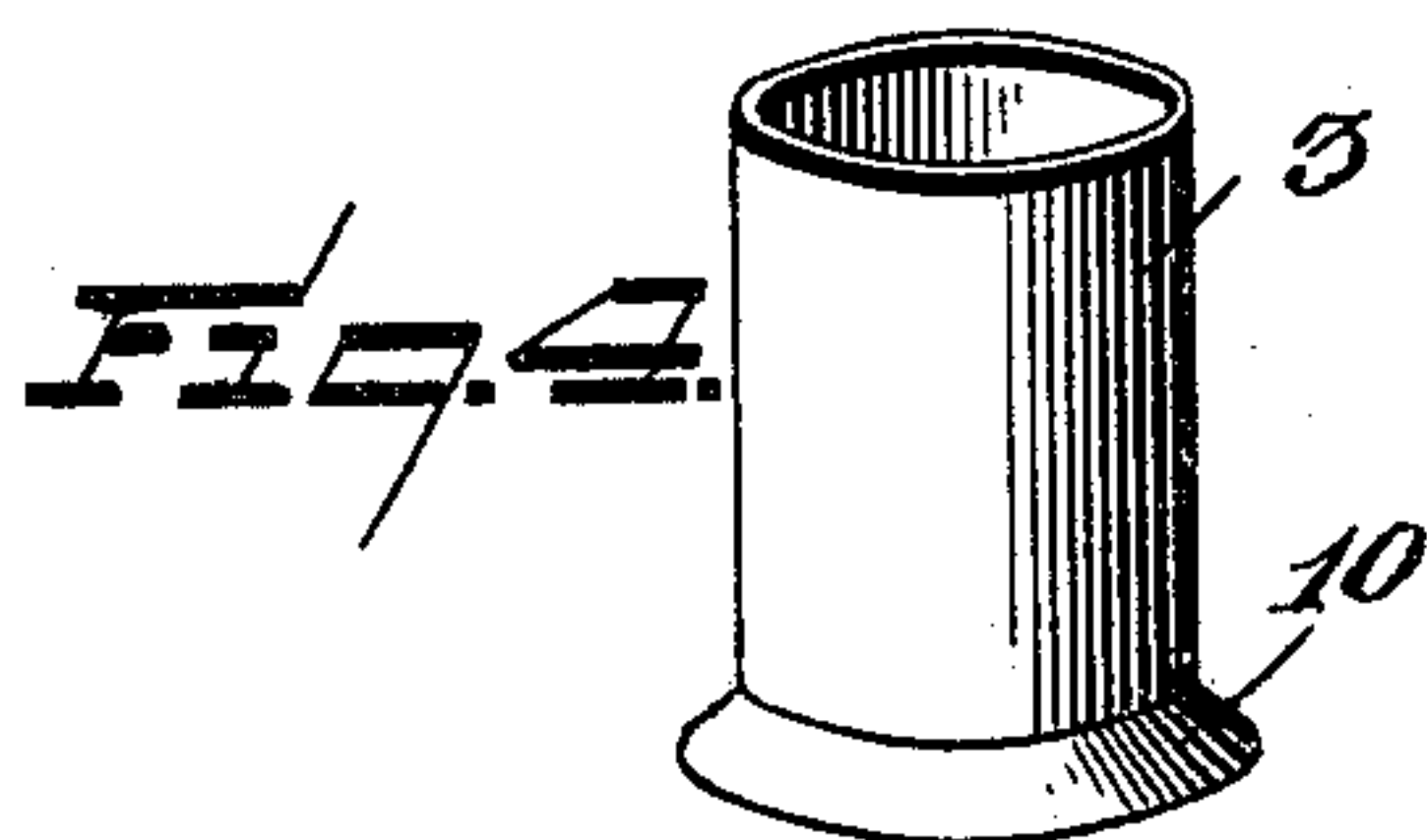
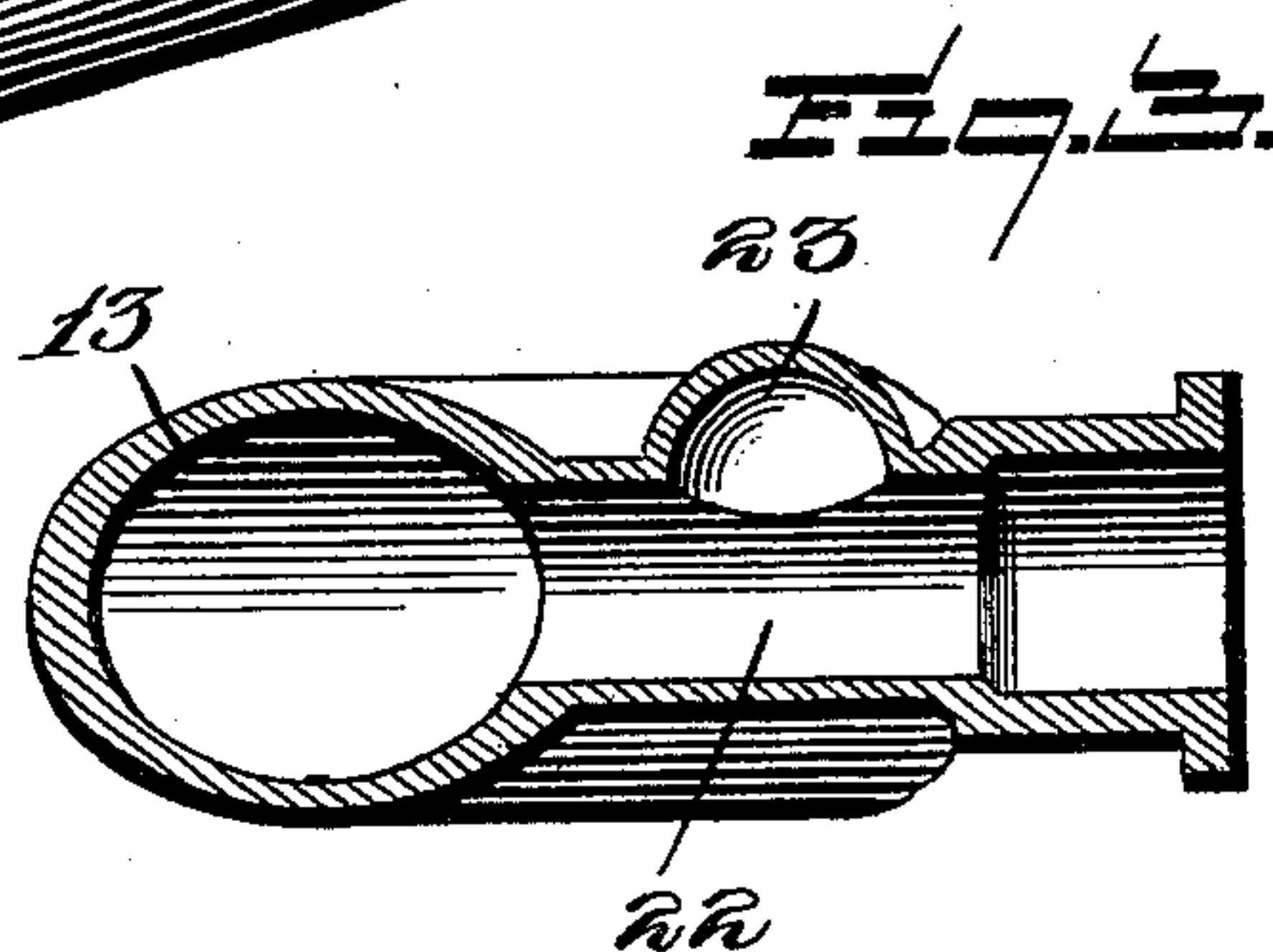
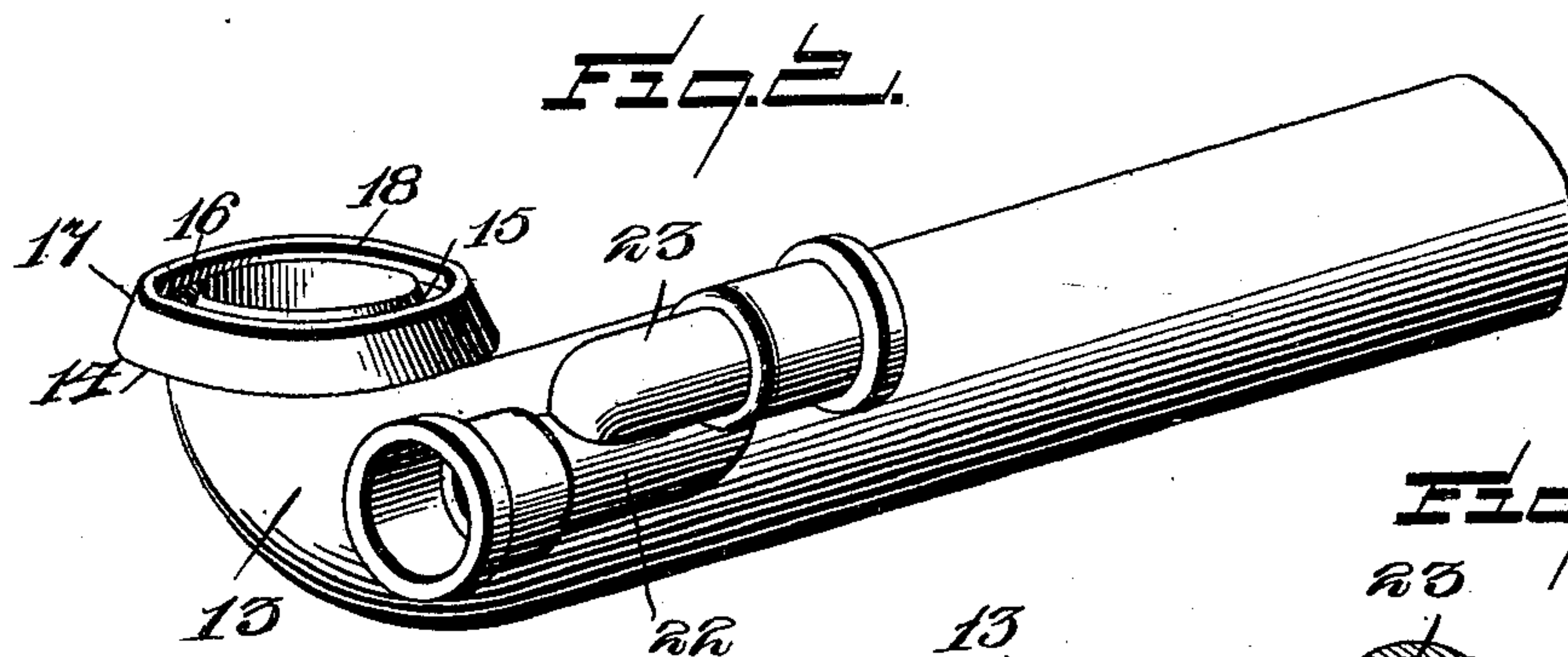
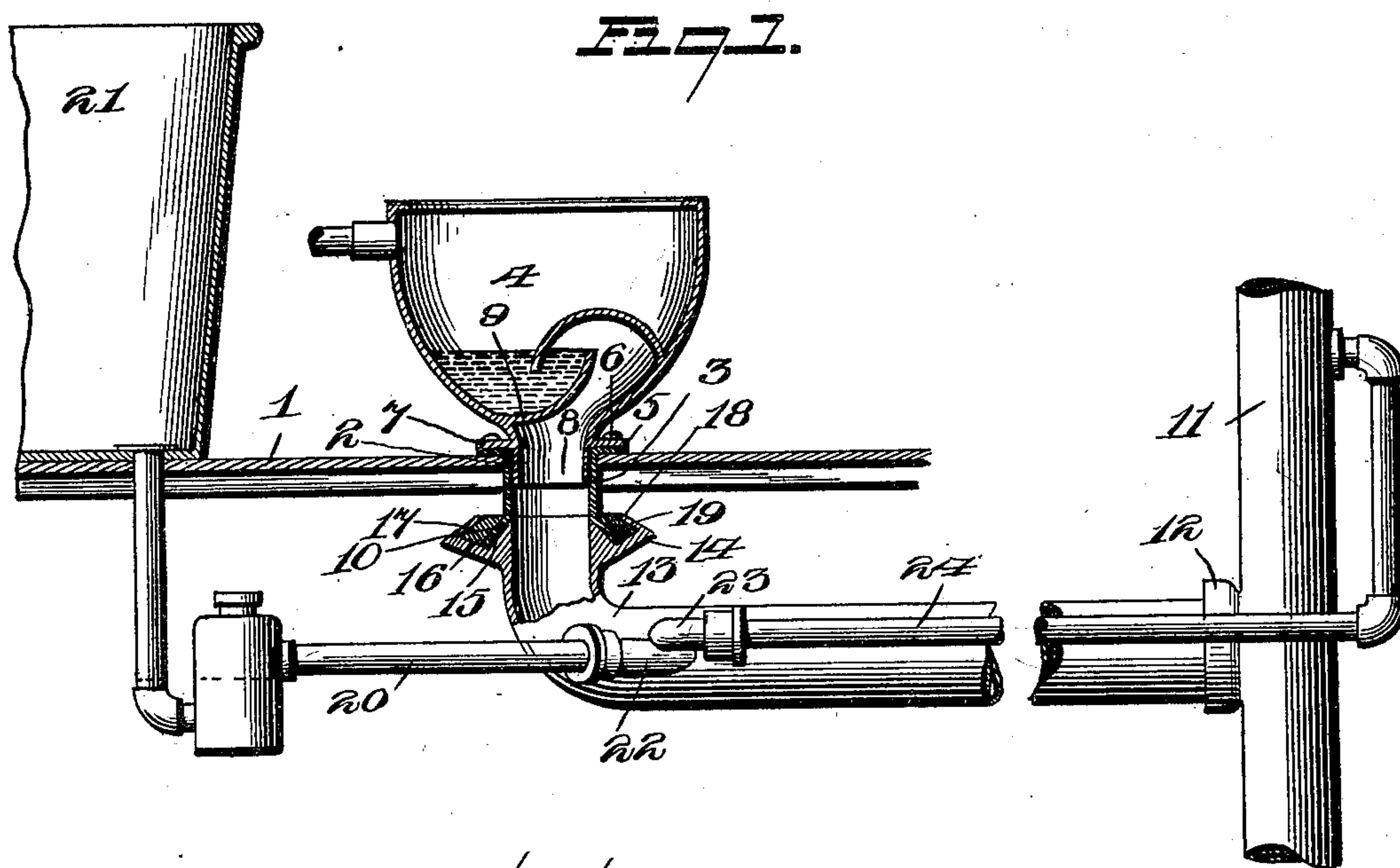


No. 683,906.

Patented Oct. 8, 1901.

J. W. BROWN.
SANITARY PLUMBING SYSTEM.
(Application filed Apr. 7, 1900.)

(No Model.)



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Witnesses

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UNITED STATES PATENT OFFICE.

JAMES W. BROWN, OF BROCKTON, MASSACHUSETTS, ASSIGNOR OF ONE-HALF TO ALBERT BLANCHARD, OF SAME PLACE.

SANITARY-PLUMBING SYSTEM.

SPECIFICATION forming part of Letters Patent No. 683,906, dated October 8, 1901.

Application filed April 7, 1900. Serial No. 12,002. (No model.)

To all whom it may concern:

Be it known that I, JAMES W. BROWN, a citizen of the United States, residing at Brockton, in the county of Plymouth and State of Massachusetts, have invented a new and useful Sanitary-Plumbing System, of which the following is a specification.

My invention relates to new and useful improvements in sanitary plumbing; and my objects are, first, to produce a novel coupling for connecting the bowl to the soil-pipe, said coupling being capable of ready attachment to the lead sleeve; second, to effect a novel joint at the juncture of the coupling or water-closet bend and the sleeve which after connection will render these elements absolutely inseparable and gas-tight; third, to provide a relief-vent for conveying back-pressure gases from the waste trap or pipe to the stand or soil pipe at a point above the connection of the latter with the waste-pipe and to prevent siphoning of closet, and, fourth, to effect this last result by casting connections for the bath-tub waste-pipe and the vent-pipe integral with the coupling member or bend in a manner to prevent the back pressure incident to flushing from forcing liquid into the vent-pipe.

To the accomplishment of these several objects the invention consists in constructing a portion of a sanitary-plumbing system in the manner hereinafter described, illustrated in the accompanying drawings, and succinctly pointed out in the appended claims.

In said drawings, Figure 1 is a general view of so much of a plumbing system as is necessary to the proper understanding of the invention, certain of the parts being shown in section. Fig. 2 is a perspective view of the water-closet bend or coupling member proper. Fig. 3 is a detail sectional view on the line of the axis of the bath-tub waste-pipe connection, and Fig. 4 is a detail view of the lead sleeve.

Referring to the numerals of reference indicating corresponding parts in the several views, 1 indicates the usual slab or flooring, provided with an opening 2 for the reception of a lead sleeve 3, extending through the opening, and to which the bowl 4 is designed to be connected. The manner in which this connection is effected is not essential to the

present invention; but, as usual, the upper end of the sleeve 3 is bent back to form a horizontal annular flange 5, resting upon the floor or slab 1 and pierced by the securing-bolts 6, passed through a horizontal annular flange 7, integral with or otherwise fixed to the bowl 4, the lower constricted end 8 of which latter is passed into the sleeve 3 and made air-tight by a packing-ring 9. This construction—that is to say, the mounting of the bowl 4 and the lead sleeve 3—is ordinary; but for the purposes of my invention I provide the sleeve with a lower flared or inclined annular end 10.

11 indicates the usual soil or stand pipe, connected at its lower end to the sewer and extending above the roof of the building to form a vent. This pipe is, as usual, provided with a bend connection 12, and the primary object of my invention is to couple the sleeve 3 to the connection 12 in a manner to facilitate the installation of the system and to render the connections absolutely gas-tight when once made.

13 indicates the coupling member or closet-bend waste-trap, which is nothing more nor less than a bend or elbow-section of iron pipe fitted at one end into the connection 12 and provided at its opposite end with an annular enlargement 14, having its end face hollowed out in a manner to form an inclined annular face 15, extending from the internal surface of the member and upon which is designed to be seated the flared end or inclined annular flange 10 of the lead sleeve 3. The hollowing out of the end face of the enlargement 14 to form the inclined annular face 15 produces what may be termed a "seal-chamber" 16, defined within an annular wall 17, made angular in cross-section to define an inwardly-constricted seal-retaining flange 18, the diameter of which at its upper edge is slightly greater than the diameter of the flared extremity 10 of the sleeve 3.

In practice the coupling member or bend 13 is presented under the sleeve 3 to cause the flared end 10 of said sleeve to pass into the hollowed face or seal-chamber 16 and into contact with the inclined annular face 15. The corresponding inclination of these contact-faces serves to produce a close joint; but in order that this may be made permanent

and that subsequent leakage may be prevented a molten seal 19—as, for instance, lead—is poured into the seal-chamber, which it completely fills. Inasmuch as the sleeve 3 and
 5 molten seal 19 are of fusible metal, they will amalgamate to form, in effect, a heavy integral flange at the lower end of the sleeve, conforming exactly to the interior of the seal-casing and having a diameter greater than
 10 the opening from said seal-chamber. It will be obvious that a joint formed in this manner will endure as long as the members connect, and I am thus enabled to quickly and conveniently install a system of sanitary
 15 plumbing in a manner to forever preclude the possibility of leakage at the points of connection. This, however, is only one of the desirable features of my novel coupling. I further contemplate the provision of means for
 20 connecting the waste-pipe 20 of a bath-tub 21 with the member 13 and of means for relieving back pressure in the bend and for preventing siphonic action to deplete the closet-trap in a manner to preclude the possibility
 25 of the entrance of liquid into the vent-pipe. These ends I attain by casting upon one side of the coupling member or bend 13 a pipe connection 22, disposed angularly with respect to the horizontal portion of the trap and
 30 designed for connection with the waste-pipe 20 of the bath-tub. To this connection 22 I cast a vent-pipe connection 23, divergently related to the waste-pipe connection 22 and communicating with said connection 22 by an
 35 opening at the top of the latter. To the vent-pipe connection 23 I connect a vent-pipe 24, which extends rearwardly practically parallel with the coupling member or closet-bend 13 and into proximity to the soil-pipe 11, its upper
 40 end being carried a suitable distance above the connection 12 and connected in any suitable manner to said soil-pipe. It will now be seen that when the bowl is flushed the back pressure invariably occasioned by this operation
 45 will be relieved by the escape of gases to the waste-pipe connection 22 and thence through the vent-pipe connection 23 and vent-pipe 24 to the soil-pipe 11 at a point above the connection of the latter to the bowl and
 50 that siphonic action which would draw the water out of the closet-trap will be prevented. Attention is here called to the peculiar relation of the waste and vent pipe connections 22 and 23, the latter communicating with the
 55 former at its top, the purpose of this particular arrangement being to permit the gases to rise from the waste-pipe connection 22 into the vent-pipe connection 23, thereby precluding the passage of liquid to the vent-pipe.
 60 From the foregoing it will be observed that I have produced a simple and ingenious coupling member or closet-bend for sanitary-plumbing systems comprehending novel means for effecting a permanent connection
 65 with the bowl-sleeve and means for relieving

back pressure by permitting the escape of gases by a vent arranged in a manner to prevent the escape of liquid thereto; but while the present embodiment of my invention appears at this time to be preferable I do not
 70 desire to limit myself to the structural details defined, but reserve the right to effect such changes, modifications, and variations as may come properly within the scope of the protection prayed.
 75

Obviously any desired type of closet-bowl may be employed in carrying out my invention. I consider the combination self-sealing closet a preferable type in most instances, however, and by preference I interpose at
 80 some point in the bath-tub waste-pipe 20 a bottle or other suitable form of seal, as shown.

What I claim is—

1. A coupling member for sanitary-plumbing systems comprising a pipe-section, a waste-pipe connection extending from said pipe-section, and a vent-pipe connection carried by and extending from the upper side of the waste-pipe connection.
 90

2. In a sanitary-plumbing system, the combination with a bowl and soil-pipe, of an intermediate coupling member comprising a pipe-section having a waste-pipe connection and a vent-pipe connection both located upon
 95 its exterior, the vent-pipe connection communicating with and extending from the upper side of the waste-pipe connection.

3. The combination with a pipe-section provided with a terminal seal-chamber defined
 100 between annular flanges terminating in substantially the same plane, the outer flange being inclined to overhang the seal-chamber, of a fusible sleeve having its end extended into the seal-chamber, and a fusible seal
 105 amalgamated with the end of the sleeve and extended under the overhanging flange.

4. The combination with a pipe-section having a terminal seal-chamber defined by an overhanging outer flange, and an inner flange
 110 disposed opposite the overhanging portion of the outer flange in the direction of the diameter of the pipe-section, of a fusible sleeve seated against the inner flange, and a seal amalgamated with the sleeve and extended
 115 under the overhanging portion of the outer flange.

5. A pipe-section having an overhanging outer flange and an inner flange disposed opposite the overhanging portion of the outer
 120 flange in the direction of the diameter of the pipe-section to form a seal-chamber between said flanges.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in
 125 the presence of two witnesses.

JAMES W. BROWN.

Witnesses:

CARLTON S. BEALS,
 GEORGE M. TOWER.