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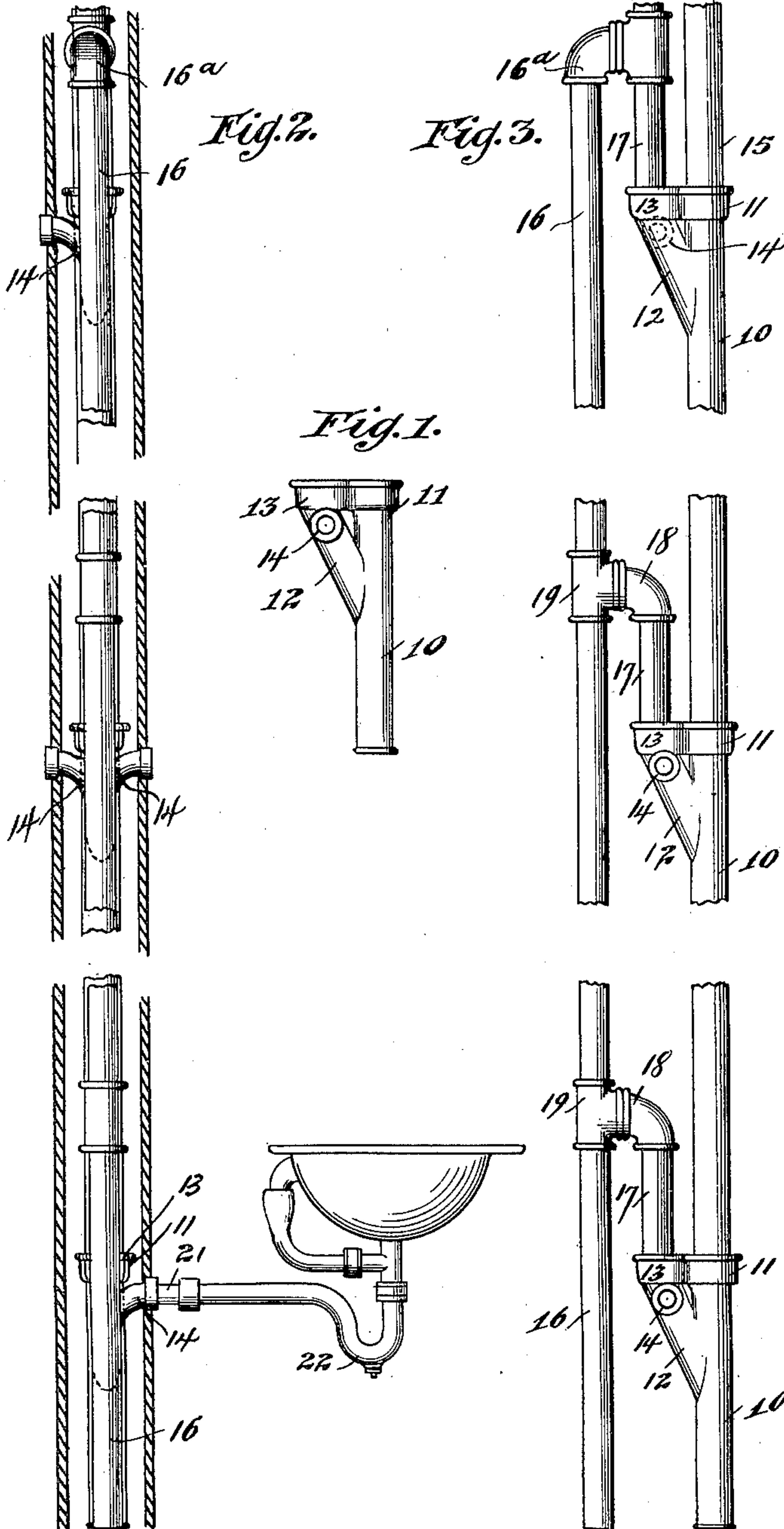
Patented May 28, 1901.

J. L. FRUIN & W. J. WALKER.
PLUMBING SYSTEM AND FITTINGS THEREFOR.

(Application filed Apr. 13, 1899.)

(No Model.)

3 Sheets—Sheet 1.



Witnesses,
J. S. Mann,
Frederick Goodrum

Inventors:
John L. Fruin,
William J. Walker,
By Offield, Towler & Litchum,
Attys.

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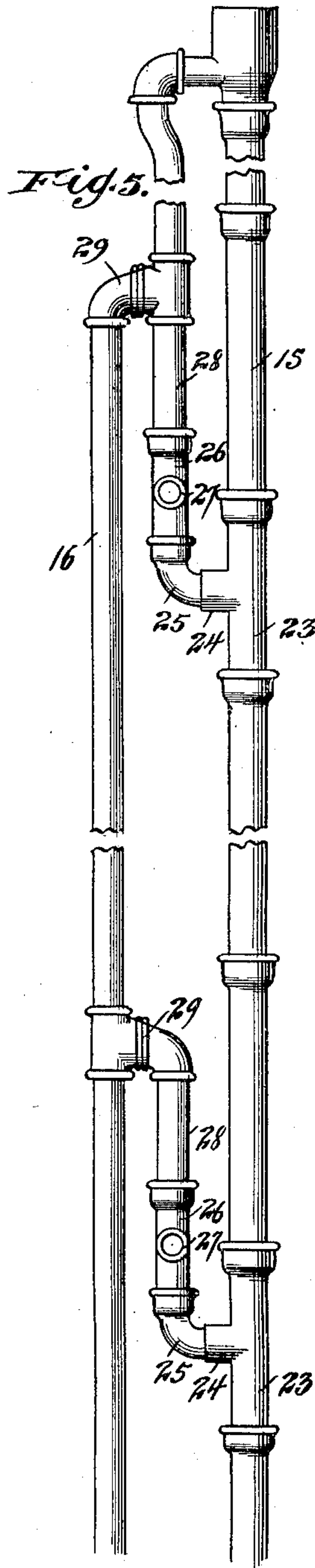
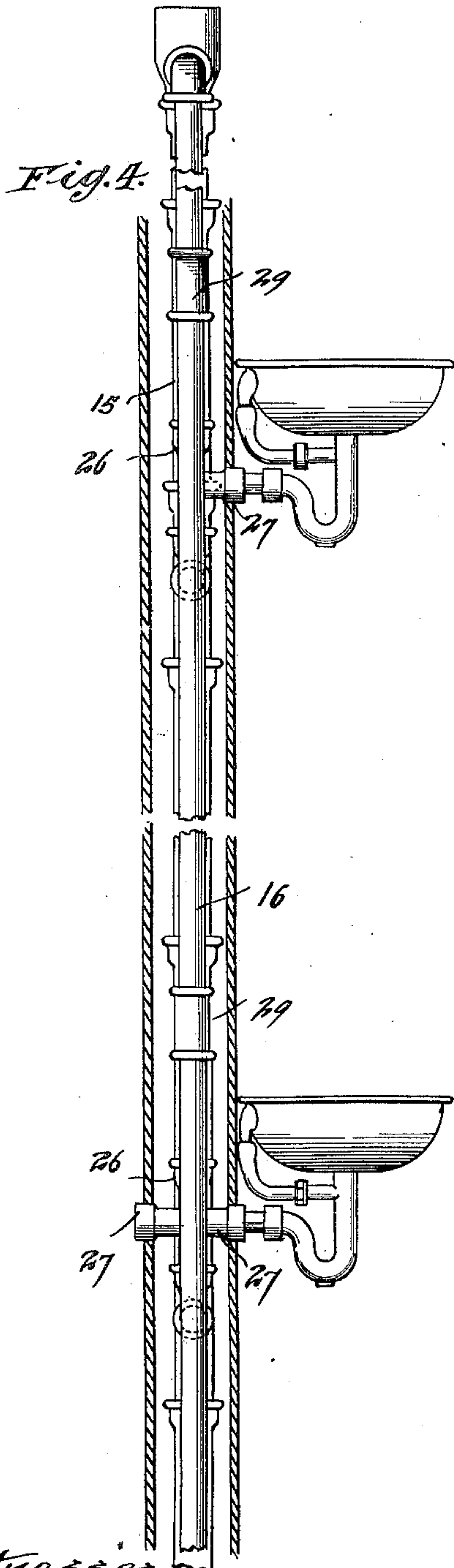
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Witnesses,
J. D. Mann,
Frederick Goodrum

Inventors,
John L. Fruin,
William J. Walker,
By Offield, Towler & Littlejohn,
Attys.

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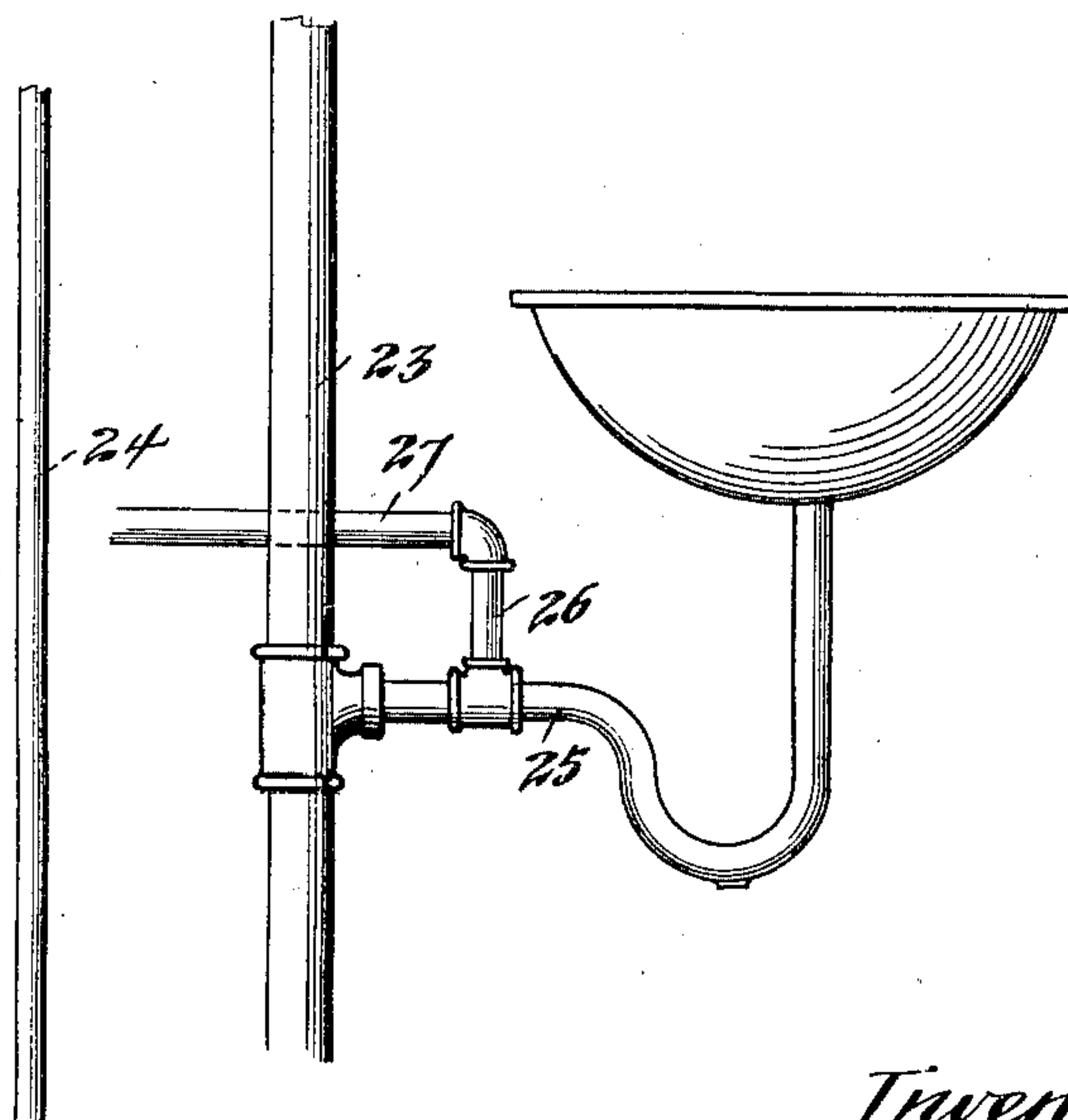
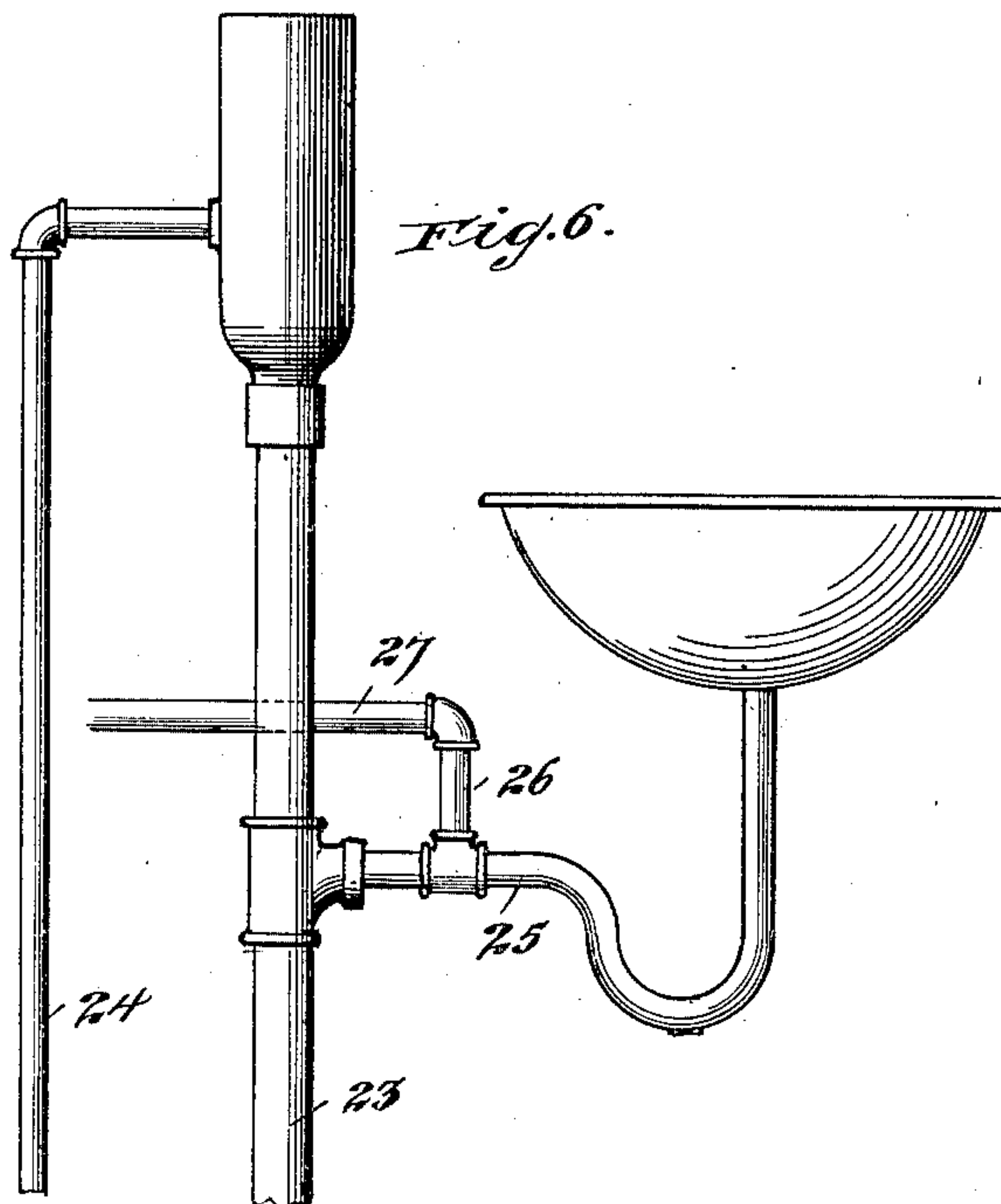
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3 Sheets—Sheet 3.



Witnesses,
J. E. Mann,
Frederick Goodwin

Inventors:
John L. Fruin,
William J. Walker,
By Offield, Fowler & Luthien
Attys.

UNITED STATES PATENT OFFICE.

JOHN L. FRUIN AND WILLIAM J. WALKER, OF CHICAGO, ILLINOIS.

PLUMBING SYSTEM AND FITTINGS THEREFOR.

SPECIFICATION forming part of Letters Patent No. 675,090, dated May 28, 1901.

Application filed April 13, 1899. Serial No. 712,911. (No model.)

To all whom it may concern:

Be it known that we, JOHN L. FRUIN and WILLIAM J. WALKER, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Plumbing Systems and Fittings Therefor, of which the following is a specification.

This invention relates to plumbing systems and fittings therefor for use in those portions of plumbing systems which are vertically arranged, being adapted to establish a connection between fixtures—such as bowls, sinks, or the like—and the soil and revent pipes of the system.

Our present invention has for its object to provide a system and fitting which are simple and compact and by means of which the pipes of the system may be arranged entirely within the wall-space, with only a single opening necessary on each side of the device for the proper connection of a fixture, whereby superior compactness of arrangement may be obtained.

Our invention has for its further object to provide a construction which will prevent the accumulation of rust in the connection between the fixture and revent-pipe and by means of which siphoning may be avoided, while a constant circulation of air through the soil and revent pipes and their connections is obtained.

To these and other ends the invention consists in certain novel features, which we will now proceed to describe and will then particularly point out in the claims.

In the accompanying drawings, Figure 1 is an elevation of our improved fitting detached. Fig. 2 is a view taken in vertical section through a wall of a building and illustrating the system in position, the fitting being shown in three different forms—as a left-hand fitting, right-hand fitting, and combined right and left hand fitting. Fig. 3 is a side view of the construction shown in Fig. 2 with the fixture connections removed. Fig. 4 is a view similar to Fig. 2, illustrating our improved system constructed of fittings such as are now usually found in the market, our specially-devised fitting being omitted. Fig. 5 is a view similar to Fig. 3 of the construction shown in Fig. 4; and Fig. 6 is an illustrative view showing the type of connection now in gen-

eral use, for which our improved fitting is a substitute.

In the said drawings we have shown in Fig. 1 a fitting constructed in accordance with our invention, said fitting comprising a straight portion 10, which when the fitting is in place forms a continuous part of the waste or soil pipe, being provided at its upper end with a hub or enlarged collar 11, which is adapted to receive the lower end of one of the soil-pipe sections and to be connected therewith by a lead-calked joint. Near its upper end this straight section 10 is provided with an outwardly and upwardly inclined branch 12, terminating above in a hub or collar 13, which is preferably cast united therewith. This hub or collar 13 is adapted to receive a pipe whereby connection is established with the revent-pipe, said connecting-pipe being preferably joined thereto by a lead-calked joint. Below the collar 13 the branch 12 is provided with a laterally-extending branch 14, having a lateral opening to receive the fixture connection. The union of said branch 14 with branch 12 is entirely unobstructed, and said branch 14 may be either threaded or provided with a hub or collar, so as to receive the fixture connection either by a threaded or by a lead-calked joint, as may be desired. The laterally-opening branch 14 may be located either on the left-hand side of the fixture, as shown at the top in Fig. 2, or on the right-hand side, as shown at the bottom in said figure, or there may be two such branches located both on the left and right hand sides, as indicated in the middle portion of said Fig. 2, and in all cases there is an entirely free, open, and unobstructed passage-way from the branches 14 into the branch 12.

The fitting thus constructed is adapted and devised for use in the manner shown in Figs. 2 and 3 of the drawings, in which a portion of a plumbing system is shown embodying our invention. In this construction, 15 indicates the soil or waste pipe, which, being open at the top above the roof, has also the character and function of a vent-pipe, which the straight section 10 of the fitting forms a portion or continuation in a direct vertical line, while 16 indicates the revent-pipe, the fitting being so located that the in-

clined branch 12 lies in the same plane with the pipes 15 and 16, which plane is a plane parallel with the walls between which the several pipes are located, so that a minimum of space is occupied by the entire system so far as width is concerned, and it may readily be placed in position within the hollow interior of the wall-space. The inclined branch 12 is connected at its upper end by means of a vertical pipe 17, elbow 18, and T-coupling 19 with the revent-pipe at a point above the water-level of the fixture, while the fixture, as indicated in the lower portion of Figs. 2 and 3 at 20, is connected directly with the laterally-opening branch 14 by means of a straight horizontal section 21, connecting its trap 22 with the opening of said branch. It will be seen that by this construction only a single opening in the wall is needed to connect the fixture to the fitting and that this connection is effected in a horizontal direction, the opening thereof being into the inclined branch, which connects at its upper end with the revent-pipe and at its lower end with the waste-pipe. We prefer to offset slightly the uppermost section of the revent-pipe 16, as indicated at 16^a, so that said section will be vertically in line with and above the uppermost vertical connecting-pipe 17 between the inclined branch 12 and the revent-pipe.

The advantages of the foregoing construction will be more readily appreciated by a comparison thereof with the construction in ordinary use, which is shown in Fig. 6 of the drawings, in which the waste and vent pipe is indicated at 23 and the revent-pipe at 24. In this construction the waste-pipe 25 of the fixture is connected directly with the main waste-pipe 23, while the connection with the revent-pipe 24 is effected by means of a vertical pipe 26 and a horizontal pipe 27, leading from the pipe 25 to the revent-pipe. This construction not only necessarily involves the use of a greater number of parts and fittings and the employment of two wall-openings at least, but the construction is such that rust may gather in the connection between the fixture waste-pipe and the revent-pipe and will remain there and clog or obstruct said connecting-pipe. Moreover, the construction is such that a much greater amount of wall-space or unnecessary bends in the connecting-pipes is required than is the case with the construction which we have devised. Furthermore, by reason of our construction any rust which may form in the revent-pipe connections is free to descend by gravity into the waste-pipe by reason of the vertical and inclined arrangement of the connections and will thus be discharged and prevented from clogging or obstructing the connections leading to the revent-pipe. We prefer to offset the uppermost portion of the revent-pipe in the manner hereinbefore set forth for the reason that we find that rust is more apt to accumulate at the top of said pipe. By the

construction indicated this rust is free to drop directly into the waste-pipe, at the upper portion thereof, without being obliged to fall the entire length of the revent-pipe, which is of smaller diameter. The rust which drops into the special fittings devised by us is carried away by the rush of water from the fixtures connected therewith in an obvious manner in case it does not reach the main waste-pipe by gravity. This prevention of the clogging of the system by rust assures a constant circulation of air through both the waste and vent and the revent pipes, and the joints of the system are so located as to permit such a water test as will reduce the possibility of sewer-gas escaping into the building to a minimum.

While we prefer to employ the special form of fitting hereinbefore described in constructing our improved system, yet we do not wish to be understood as limiting ourselves to such a construction, and in Figs. 4 and 5 of the drawings we have shown a construction in which the special fitting is dispensed with and the system is built up of parts or fittings such as are now in common use and purchasable in open market. In this construction the waste and vent pipe 15 has as a portion of its continuous structure a fitting 28, which takes the place of the special fitting hereinbefore described and which is an ordinary T-fitting, the lateral opening or branch 29 of which is directed toward the revent-pipe 16 and lies in the plane of the two pipes 15 and 16. This fitting is connected by an angle-fitting 30 with a second T 31, which may have a single lateral opening 32 at right angles to the plane of the two pipes, as indicated in the upper portion of Figs. 4 and 5, or which may have two such branches on opposite sides and extending in opposite directions, as indicated in the lower portion of said figures. These branches serve to provide connections for the fixtures, as indicated in Fig. 4 and as already described with reference to Figs. 2 and 3, and the fitting 31 is itself connected at its top by a vertical pipe 33 and angle T-fitting 34 with the revent-pipe 16. While we have illustrated this modified form of our invention for the purpose of showing how the special fitting devised by us may be dispensed with, yet obviously we prefer to employ the construction shown in Figs. 1, 2, and 3, which embodies our invention in its preferred form and in which the special fitting devised by us is used.

It is obvious that modifications in the details of the construction just described may be made without departing from the principle of our invention, and we therefore do not wish to be understood as limiting ourselves to the precise details hereinbefore described, and shown in the drawings.

We claim—

1. A plumbing system comprising in combination vertical waste and revent pipes, both being open at their upper ends above the roof

and having venting functions, a connecting-pipe located in the plane of said pipes and extending upward from the waste-pipe to the revent-pipe and tapping the latter laterally thereof, and a laterally-opening branch having an unobstructed communication with said connecting-pipe at one side of the common plane of the several pipes, substantially as described.

10 2. A plumbing system comprising in combination vertical waste and revent pipes, both being open at their upper ends above the roof and having venting functions, a connecting-pipe located in the plane of said pipes and
15 extending upward from the waste-pipe to the revent-pipe and tapping the latter laterally thereof, and laterally-opening branches having unobstructed communication with said connecting-pipe on each side of the common
20 plane of the several pipes, substantially as described.

3. A plumbing system comprising vertical waste and revent pipes both being open at their upper ends above the roof and having
25 venting functions in combination with a plumber's fitting, the latter consisting of a straight upright section adapted to form a portion of the waste-pipe, an upwardly and outwardly inclined branch adapted to be located in the plane of the waste and revent
30 pipes and at its upper end connecting with

the revent-pipe at a point above the water-level in an adjacent fixture, and a laterally-opening branch having an unobstructed communication with said inclined branch near
35 the top thereof at one side of the common plane of said pipes and inclined branch, and adapted to be connected with an adjacent fixture, substantially as described.

4. A plumbing system comprising vertical
40 waste and revent pipes both being open at their upper ends above the roof and having venting functions in combination with a plumber's fitting, the latter consisting of a straight upright section adapted to form a
45 portion of the waste-pipe, an upwardly and outwardly inclined branch adapted to be located in the plane of the waste and revent pipes and at its upper end connected to the revent-pipe at a point above the level of the
50 water in an adjacent fixture, and laterally-opening branches having unobstructed communication with said inclined branch near the top thereof on each side of the common plane of the said pipes and inclined branch,
55 and adapted for connection with adjacent fixtures, substantially as described.

JOHN L. FRUIN.

WILLIAM J. WALKER.

Witnesses:

FREDERICK C. GOODWIN,
IRVINE MILLER.