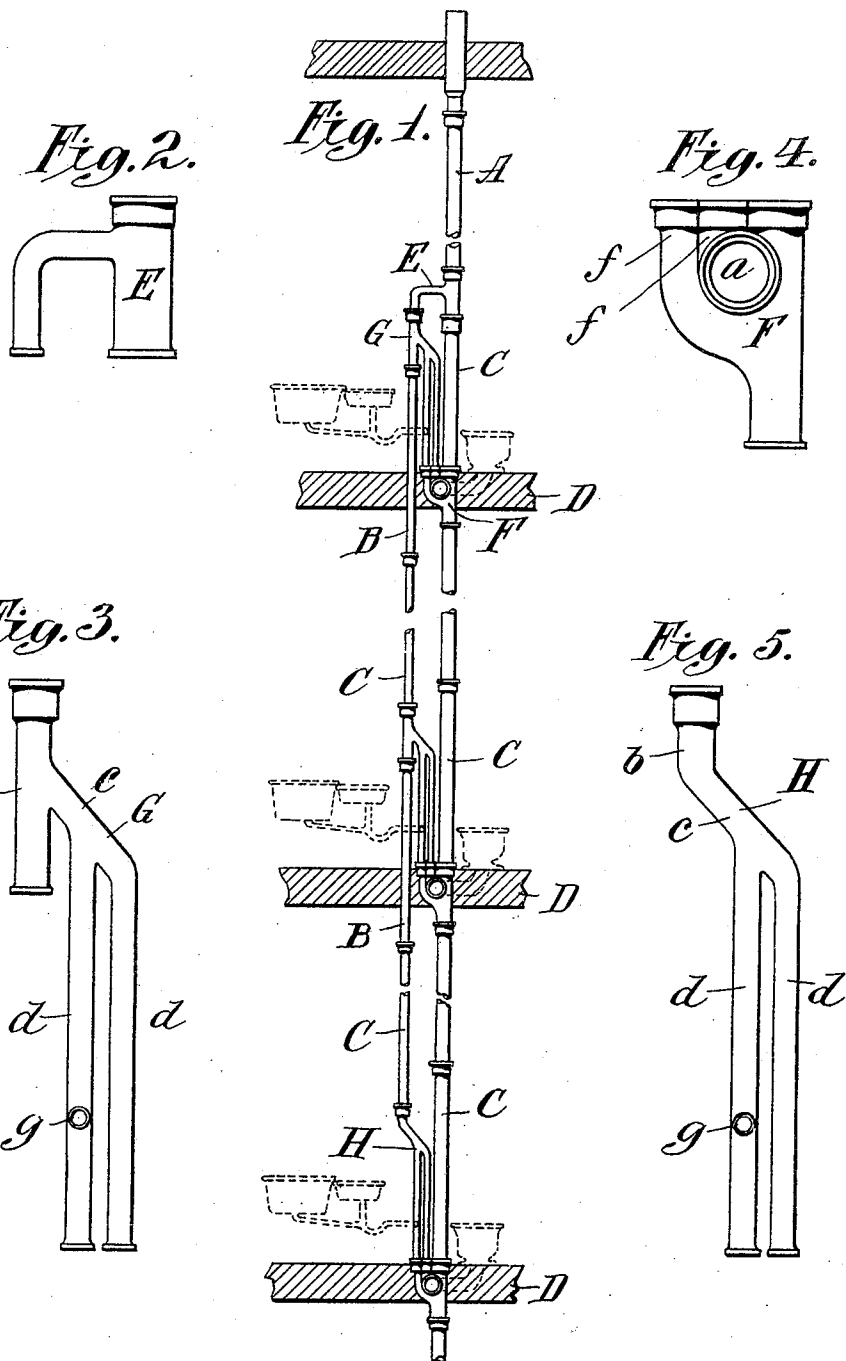


No. 810,047.

PATENTED JAN. 16, 1906.

J. L. FRUIN.
PLUMBING SYSTEM.
APPLICATION FILED OCT. 17, 1904.



Witnesses
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UNITED STATES PATENT OFFICE.

JOHN L. FRUIN, OF NEW YORK, N. Y.

PLUMBING SYSTEM.

No. 810,047.

Specification of Letters Patent.

Patented Jan. 16, 1906.

Application filed October 17, 1904. Serial No. 228,740.

To all whom it may concern:

Be it known that I, JOHN L. FRUIN, a citizen of the United States, and a resident of Brooklyn borough, New York city, and State of New York, have invented certain new and useful Improvements in Plumbing Systems, of which the following is a specification.

This invention relates to that plumbing system in which a vertical waste-pipe and a vertical vent-pipe substantially parallel with each other and reaching from cellar or basement to roof are set within a partition-wall of a building and which are provided at each floor with one or more suitable fittings wherewith connection is made with some article to be discharged and vented on the corresponding floor. This system when originally adopted was of a very simple character, the connections being few and generally single in character. As this system expands and as more connections have to be made at each floor the problem of interconnection between the various parts of the system becomes more complicated; and it is the object of this invention to solve that problem.

For brevity of description and in order that the more simple form may be readily understood without being enlarged upon in the present application I refer to Patent No. 675,090, issued May 28, 1901, to William J. Walker and myself for plumbing system and fittings therefor. In that patent connection was made at each floor by means of a simple fitting called a T with one opening only through the partition at each floor on each side of the partition and a simple short vertical pipe with a quarter-bend served at each floor to connect the vertical waste with the vertical vent. Such simplicity of construction, while effective in taking care of a series of washbasins, as shown therein, did not readily adapt itself to the more comprehensive plumbing system which I am about to describe and which involves the discharge and venting not only of a single basin or pair of basins at each floor, but a complex arrangement of washbasins, water-closets, bath-tubs, sinks, and other articles at each floor, arranged individually or in clusters. To construct a practical and sanitary system of this more complicated type involves radical modifications not only in the number but in the character of the fittings by which a proper discharge and a proper venting are at all times secured without danger of siphoning out any of the traps or water seals or creat-

ing a back draft, which would lead to the retention of noxious odors or gases. The difficulty of this problem is increased by the fact that the interior space of the wall or partition in which the system has to be set cannot be much if any larger than heretofore. Limits are thus set both as to the lateral space in which the fittings of greater capacity for discharge and venting have to be set and as to the height between floors in which the interconnection between the vertical waste and the vertical vent has to be accomplished.

A further object of my invention is to construct the system throughout in such a manner that there are no horizontal, cup-like, or inclined parts of such a character that water, grease, or any other liquid or solid matter can collect and remain within any portion of the system between the walls, and thus produce rust or clogging or generate gases or odors by decomposition. The importance of this lies in the fact that while washbasins, tubs, and other articles, with their connections outside the wall, may be readily removed to be cleaned, repaired, or replaced, the waste-pipe, vent-pipe, and all fittings which are set within the wall form a permanent fixed system, preferably set up during the construction of the building and which should never be disturbed.

While my invention is not dependent upon the particular form of fittings used in the practical application of it, and while I do not claim herein the specific fittings shown, preferring to make them the subject of separate applications, so far as they are novel, my improved plumbing system involves the use as means for bringing about the desired interconnection between the waste-pipe and the vent-pipe and for affording suitable connections with whatever articles—such as sinks, bath-tubs, closets, and basins—are to be operated by said system of fittings distinguished by the fact that they afford double or treble communication of substantial extent between a combination receiving-fitting which forms a part of the waste-pipe and a vertical vent-pipe.

My invention consists, therefore, in a plumbing system composed of a vent-pipe and a waste-pipe extending from floor to floor of a building, a multifold interconnecting fitting affording communication from said waste-pipe to said vent-pipe at a substantially higher level between said floors and a combination receiving fitting or T located in said waste-

pipe and adapted to receive several connecting-pipes, whereby a number of washbasins, closet-bowls, sinks, bath-tubs, and similar articles may be collectively discharged and individually vented.

One application of my invention is shown in the accompanying drawings, in which—

Figure 1 is a general view of my plumbing system as set up for several floors and terminating near the roof of a building. Figs. 2, 3, 4, and 5 are details of the novel fittings used in this special application of the system.

Same letters indicate similar parts in the different drawings.

A is the main waste-pipe, and B is the main vent-pipe. These two pipes are composed chiefly of a number of straight lengths of pipe C C C of suitable length with regard to the space between floors D D D. These pipes extend from the cellar or basement to the roof of the building—that is, the waste-pipe is so arranged as to extend above the roof of the building and to connect in the cellar or basement with the drain or sewer leading as a branch to the main sewer outside the building. The vent-pipe need not and preferably does not extend quite to the roof nor quite to the sewer branch, inasmuch as its function is wholly performed when it reaches below the lowest article to be vented and above the highest article to be vented. The vent-pipe and waste-pipe are therefore preferably connected at or near the roof by the fitting E, which is commonly known as a “revent” N, or a revent-increaser may be employed, if desired.

At or about the level of the floor at each story the waste-pipe A is composed of a combination T F in place of a straight pipe. This combination T has for its main body a straight portion offering a passage uninterrupted of the full interior diameter of the pipe lengths C and an offset portion separated into two vertical passages terminating in independent hubs, preferably on the same level as the main hub. From the side of this combination T projects a waste-opening *a*, which is preferably hubbed and which projects through the partition-wall, so as to be accessible from the outside. To this opening is connected a waste-pipe of sufficient capacity to serve as a discharge-pipe for a closet-bowl, (shown in dotted lines,) and, if need be, as a common discharge-pipe for several articles—such as closets, sinks, bath-tubs, &c.—on the same floor.

Instead of the form of sanitary T F shown some other form may be used, if preferred, so as to have opportunity for other openings; but whatever T is used there should be at least two independent vent-openings whereby a communication can be established inside the wall with the vent-pipe B.

At some convenient height between floors the vent-pipe B is provided with a fitting G,

which I call “a combination for closets and sinks,” because it is a revent pipe or fitting intended to vent individually two distinct articles like a closet-bowl and a sink, bath-tub, or basin of such character that the gases or odors emanating from one should be prevented from reaching the other. This combination fitting or revent consists partly of a straight portion *h*, which takes the place of a straight pipe length in the vent-pipe E and has a bore equal to that of said vent-pipe. From the side of this straight portion an inclined branch *c* descends toward the fitting F at such an angle as to afford no resting-place for water or any other liquid or solid matter which otherwise might tend to settle from the ascending air or gases. This inclined branch terminates in a number of vertical pipes *d d*, corresponding to the vent-openings *f f* in the fitting or T F, so that there is a direct vertical chimney-like pull or draft therein of substantial and effective character, thus aiding the venting started by the main vent-pipe B. One of these vertical pipes has a small opening *g*, situated at any convenient height and opening through the partition-wall to enable it to connect with the outlet-pipe of a sink (shown in dotted line) or similar article to be discharged and vented. It will thus be seen that this branch pipe serves the double function of a vent and waste, the water from the sink coming in through the opening *g*, running down through sanitary T F to the main waste-pipe A, while the gases and air coming in through said opening ascend to the vent-pipe B independently of the terminations arising from the T through the other vertical branch.

Other forms of combination fittings may be substituted in place of the one shown, their essential character being, however, that they should have at least two individual venting branches, so that the closets, basins, and other articles at each floor may be individually vented and discharged a sufficient distance to insure sanitary operation before merging in the waste or vent common to all of said articles.

When the vent-pipe B has descended below the floor above the last or lowest combination or sanitary T, it may merge into the waste-pipe by the form of fitting H, which retains the two vertical individual venting branches, but dispenses with the lower part of the straight body.

It would be readily understood that my improved plumbing system as compared with the system described in Patent No. 675,090, above referred to, introduces with great economy of space and material and without increasing the number of fittings employed the very important feature of individual venting as above described instead of allowing the sinks, bath-tubs, washbasins, and closets to vent immediately and discharge immediately in common.

I do not claim herein separately the multi-fold interconnecting fitting G, which forms the subject-matter of a separate application, Serial No. 228,741, filed October 17, 1904; nor
5 do I claim the sanitary T F, which forms the subject-matter of a separate application, Serial No. 229,059, filed October 19, 1904.

I claim—

10 A plumbing system composed of a main vent-pipe and a main waste-pipe extending from floor to floor of a building, a combination receiving-T located in said main waste-

pipe and adapted to receive the discharge of a number of washbasins, closet-bowls, sinks, and bath-tubs, and vent the same individually, 15 and a multifold interconnecting fitting which connects said T with said main vent-pipe at a substantially higher level between said floors whereby said individual venting is accomplished.

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