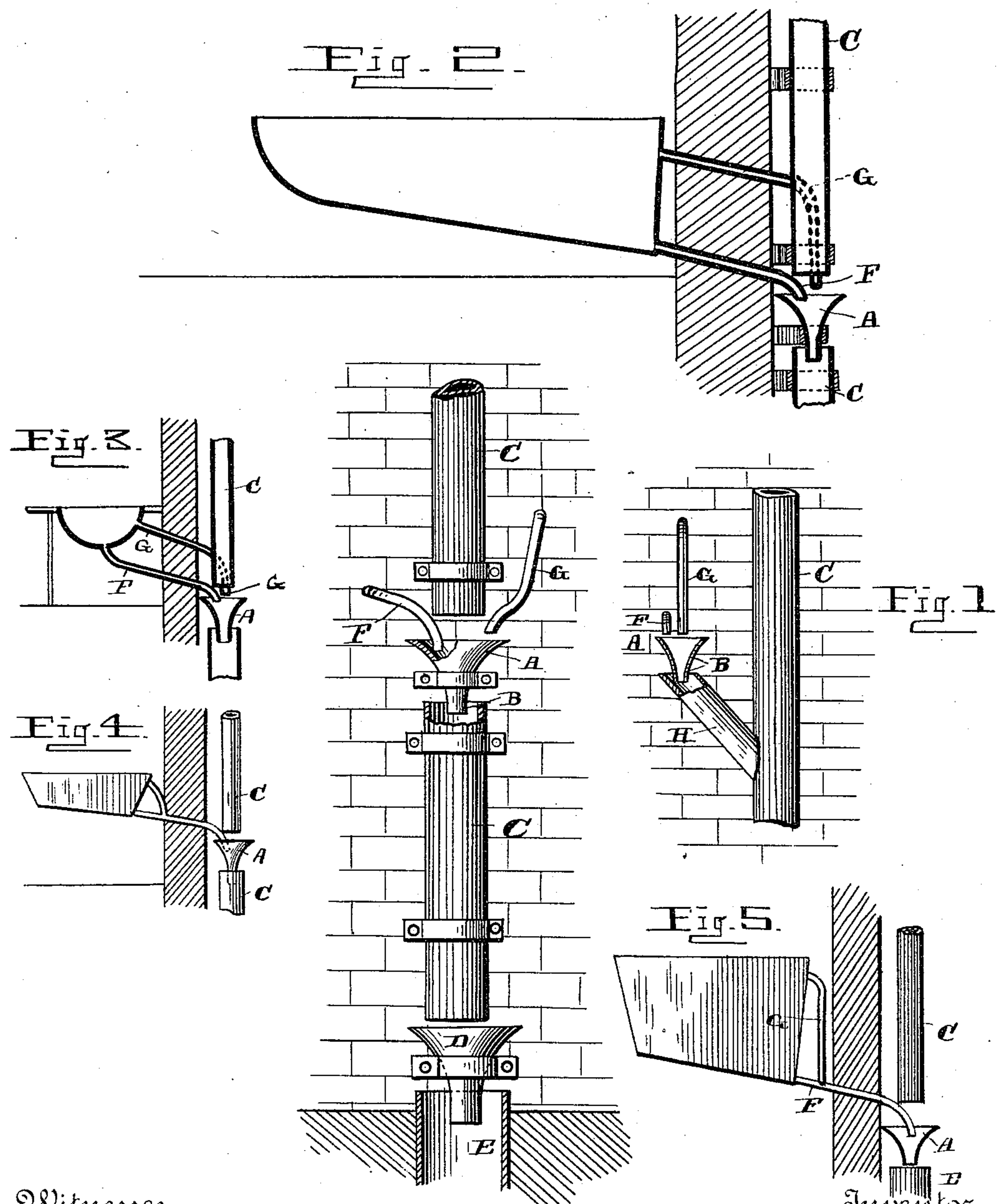


(No Model.)

J. L. CRITTENDEN.  
DRAIN PIPE FOR BUILDINGS.

No. 452,023.

Patented May 12, 1891.



Witnesses

Arthur E. Sowell  
J. Mansfield

Fig. 6

By his Attorney

James L. Crittenden

T. H. Alexander



# UNITED STATES PATENT OFFICE.

JAMES L. CRITTENDEN, OF OAKLAND, CALIFORNIA.

## DRAIN-PIPE FOR BUILDINGS.

SPECIFICATION forming part of Letters Patent No. 452,023, dated May 12, 1891.

Application filed May 14, 1890. Serial No. 351,839. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES L. CRITTENDEN, a citizen of the United States, residing at Oakland, in the county of Alameda and State of California, have invented certain new and useful Improvements in Drain-Pipes for Buildings; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

The object and nature of my invention are to furnish a free, unobstructed, and efficient outlet for all sewage and waste water and liquids from wash-basins, bath-tubs, water-closets, sinks, tubs, and other vessels in dwelling-houses and other buildings, and at the same time to dispense with any and all kinds of traps, elbows, and curves, and also at the same time to provide against the possibility of any and all deleterious or noxious or offensive odors, vapors, or gases entering such dwelling-house or other building from the sewers or drains into which said sewage, waste water, or other liquids may be discharged. I accomplish this object, first, by furnishing a short, straight, and unobstructed connecting-pipe without a trap (for the carriage of such sewage, waste water, other liquids, &c.) from the wash-basins, bath-tubs, water-closets, sinks, tubs, and other vessels to a point over and near to but entirely disconnected from a funnel-shaped hopper in the open air on the outside of such building, and, secondly, by having such hopper, where connected with the waste-pipe, much smaller than such waste-pipe, but held in place by means of vertical flanges or other similar devices, in such manner as to leave much open space between the inside of said waste-pipe and the outside of said hopper-connection for the free circulation and escape of air and vapors and gases, and, thirdly, by having the pipe into the end or branch of which said hopper is placed disconnected and separate from the pipe leading from the basin, wash-tub, bath-tub, sink, or other vessel, and distinct and separate from the sewer-pipe in the ground and extending to or above the mouth of and emptying into

a large hopper, which is connected with and empties into the sewer in the ground. This pipe may, however, be connected directly with the sewer, and the hopper at the ground dispensed with. I also have a second and independent straight and unobstructed pipe from near the top of the wash-basin, bath-tub, or other vessel to the open air, discharging above and into said or a similar hopper placed in the end or in a branch of the disconnected pipe C, or in a separate disconnected pipe for carrying off any overflow.

I so construct all basins, bowls, tubs, sinks, &c., that they shall have a gradual and continuous declination to the point of outlet, and so that the outlet therefrom shall be at the lowest point and at the side or end thereof nearest to the waste-pipe on the outside of the building. There may or may not be a ventilating-pipe connected with the waste-pipe at or near to the point where the hopper is placed. I also accomplish this, first, by dispensing with traps and curves in the outlet-pipes, thereby avoiding all danger of and opportunity for the collection of impurities, deleterious substances in such pipes and the danger of stoppage and clogging of said pipes; second, by having a short, straight, and disconnected outlet-pipe the same may be easily and thoroughly cleaned by any person without the delay or expense of employing a practical plumber, while the free circulation of air tends to keep said outlet-pipes clean and sweet; third, by discharging the sewage, water and other liquids on the outside of the house into an open hopper situated just below the outlet-pipes all possibility of gases or noxious vapors or odor entering the building by means of waste-pipes is absolutely avoided; fourth, by having said open hopper set into the waste-pipe with ventilating-space around its sides I provide an additional means of preventing sewer-gases and other noxious vapors and odors from entering the outlet or discharge pipes of the building; fifth, by having the pipe on the outside of the building, in the top or a branch of which the open hopper is placed—a separate and distinct pipe wholly disconnected from the sewer and wholly disconnected from the outlet, waste, and overflow pipes—I provide an additional means of preventing sewer-gases and other noxious va-



5 pors and odors from ascending into or entering into the outlet, waste, or overflow pipes, or from entering the room or building in which the wash-tub, sink, bath-tub, or other vessel is placed.

The accompanying drawings illustrate the invention made by me.

10 In said drawings, Figure 1 is a side view on the outside of the building. Fig. 2 shows a bath-tub fitted with my invention. Fig. 3 is a wash-bowl. Fig. 4 is a sink, and Fig. 5 is a wash-tub, all fitted with my invention. Fig. 6 shows the hopper-connection on the outside of the building without the ventilating-pipe 15 attached.

In the drawings, A is the hopper.

20 B is the open space between the bottom of the hopper and the pipe into which it discharges, and C is the waste and ventilation pipe.

D is a large hopper at the ground connecting with the sewer-pipe.

E is the sewer-pipe in the ground.

25 F is the outlet-pipe from the basin, sink, wash-tub, bath-tub, or other vessel, and G is the overflow-pipe from the basin, sink, wash-tub, bath-tub, or other vessel.

30 I am aware that water-closets have been formed with contracted ends that entered the larger mouth of a waste-pipe inside the building—for instance, such as are shown in German Patent No. 22,407. Such I do not claim, because my object is to entirely disconnect the drain and waste pipes and leave air-passages for the escape of gases between the 35 pipes exterior to the building; and

Therefore what I do claim is—

40 1. The combination of a vertical drain and ventilating pipe arranged exterior to a building and emptying into the sewer-pipe, branches leading into said pipe, and the outlet or waste

pipes leading from the sinks, &c., in the building above said branches, with the funnel-shaped hoppers arranged exteriorly of the building and interposed between the waste- 45 pipes and branches to receive from the former and empty into the latter, and having their delivery ends smaller than the open mouth of the branches and their receiving ends larger than the waste-pipes, whereby any gases rising 50 through the branches will be deflected outward exteriorly of the hopper and waste-pipe, and free air spaces or passages be left between the waste-pipes and hoppers above the branches, substantially as described. 55

2. The combination of the sewer-pipe, a hopper suspended above and emptying into said sewer-pipe, but allowing gases to escape from the latter exteriorly to and around the hopper, a waste and ventilating pipe suspended above 60 said hopper and emptying therein, but permitting free escape of gases or passage of air between the mouth of the hopper and end of drain-pipe, and having a receiving branch, all said parts being exterior to the building, with 65 outlet or waste pipe leading from the sink in the building above the receiving branch, and a hopper arranged exterior to the building and interposed between the end of said waste-pipe and mouth of branch, so as to leave free 70 spaces for passage of air or gas between the branch and hopper and between the hopper and waste-pipe, substantially as and for the purpose specified.

75 In testimony whereof I have and do hereunto set and affix my signature in the presence of two witnesses.

JAMES L. CRITTENDEN.

In presence of—

THOMAS T. CRITTENDEN,

HENRY P. BOWIE.