B. P. BOWER.

SEWER GAS-TRAP.

No. 189,888. Patented April 24, 1877.

Fig. 1.

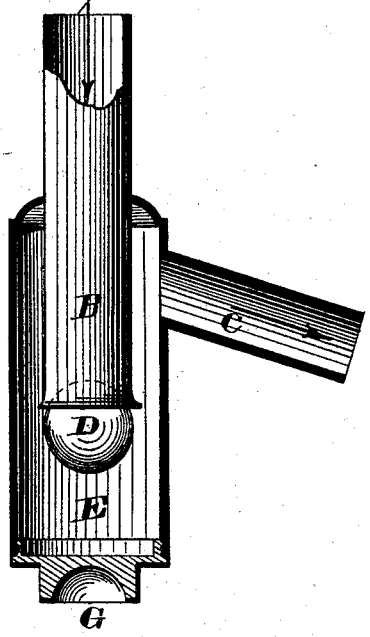

Fig. 2.

WITNESSES

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UNITED STATES PATENT OFFICE.

BUCKLAND P. BOWER, OF CLEVELAND, OHIO.

IMPROVEMENT IN SEWER-GAS TRAPS.

Specification forming part of Letters Patent No. **189,888**, dated April 24, 1877; application filed February 12, 1877.

To all whom it may concern:

Be it known that I, BUCKLAND P. BOWER, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Sewer-Gas Traps; 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 pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in sewer-gas traps; and consists in providing the same with a floating valve, which acts by its floating-pressure, whereby the escape of sewer-gas into apartments or places where it is desirable to exclude it, is effectually prevented.

In the drawing, Figure 1 represents a longitudinal sectional view of a sewer or stench trap embodying my invention. Fig. 2 represents a modification of the floating valve.

The inlet-pipe B, as shown in the drawing, extends down into the chamber E, which is of somewhat larger dimension than said pipe B. Instead of this particular construction, however, the dimensions—or, rather, diameter—of chamber E and pipe B may be alike, in which case the former would merely constitute the continuation of the latter; and in order to permit the floating valve to be applied successfully to such a construction, it would be only necessary to secure to the interior an annular ring or projection to arrest the upward tendency of the floating valve to seek its level. I prefer, however, to adopt the construction shown and described. C is the outlet-pipe, with its discharge-opening placed at such a position with relation to the floating valve D and the mouth of pipe B that the level of the water in chamber E will always be a sufficient distance above the mouth of said pipe B to secure the required floating-pressure exercised by the valve to efficiently guard against any upward escape of deleterious gases. This construction may likewise be changed by making the outlet-pipe merely a continuation of the inlet-pipe and chamber described; but in this case the whole device would be bent in the form usually employed, and a stop or projection would be required on the outlet side of the valve to prevent its discharge or removal from its operative position. G is a cap, which screws onto, or is attached in any suitable manner to, the lower end of the chamber E, which is removed when it is desired to clean the trap, or to remove or introduce the floating valve. D is the valve, which may be constructed of metal, rubber, or any other suitable material, and may be of any shape effectual for the purpose to be accomplished. If constructed of metal it would, of course, be hollow, and is also preferably made hollow when rubber is employed. When the nature of the material selected does not require a hollow construction a solid valve may be employed.

I prefer to construct the floating valve of rubber, in the shape of a hollow ball; but a cylindrically-shaped valve with a flat top, which abuts against the lower end of the inlet-pipe, also accomplishes the purpose designed. In the place of a ball, an egg-shaped valve might be employed.

I prefer to construct the lower end of pipe B with a flaring mouth, by which a greater amount of surface is brought in contact between said floating valve and the sides of the flaring mouth; but this construction is not an essential element of my invention.

The operation of the device is as follows: The discharge through pipe B will, in the first instance, fill the receptacle E with the fluid to a height corresponding with the position of the outlet-pipe C. This will bring the level of the fluid in the chamber E in a plane a considerable distance above that in which the mouth of the pipe B lies. It will readily be seen that the higher up the outlet-pipe C is located with reference to the mouth of pipe B the higher the fluid will rise in the chamber E, and therefore the greater will be the pressure exercised by the floating valve against the mouth of pipe B in its effort to reach the surface of the fluid. Now, when a column of fluid descends through pipe B it pushes downward and away from the mouth of pipe B the floating valve D by reason of the greater pressure of the column of descending fluid, and allows the same to pass beyond and discharge through the outlet-pipe C. When this pressure has been removed, or when the pressure exercised by the upward tendency of the valve is greater than that of the descending column of water, the floating

valve ascends to its place and closes securely the mouth of pipe B, and thus effectually prevents any escape of any sewer-gases into said pipe B. This principle of closing said mouth by means of the floating-pressure of a valve is found in practice much more efficient and reliable to accomplish the result sought than what can be secured by any device which acts only on the principle of gravitation, and where the body of the valve is not immersed, as in my invention, entirely in the fluid.

The distance to which the ball enters the mouth of the pipe D is so regulated that in case the surface of the water descends below the mouth of said pipe for a short distance the ball will still be in contact with said mouth, and even then prevent any gases from entering said pipe.

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

A sewer-gas trap consisting in a chamber having an eduction-pipe leading therefrom, and an induction-pipe extending downwardly below the line of standing water in said chamber, the lower end of said pipe constituting a valve-seat, which latter is closed by a valve, that acts by its floating-pressure to close the valve-seat, substantially as and for the purposes described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

BUCKLAND P. BOWER.

Witnesses:

JOHN J. MCEVOY,

FRANCIS TOUMEY.