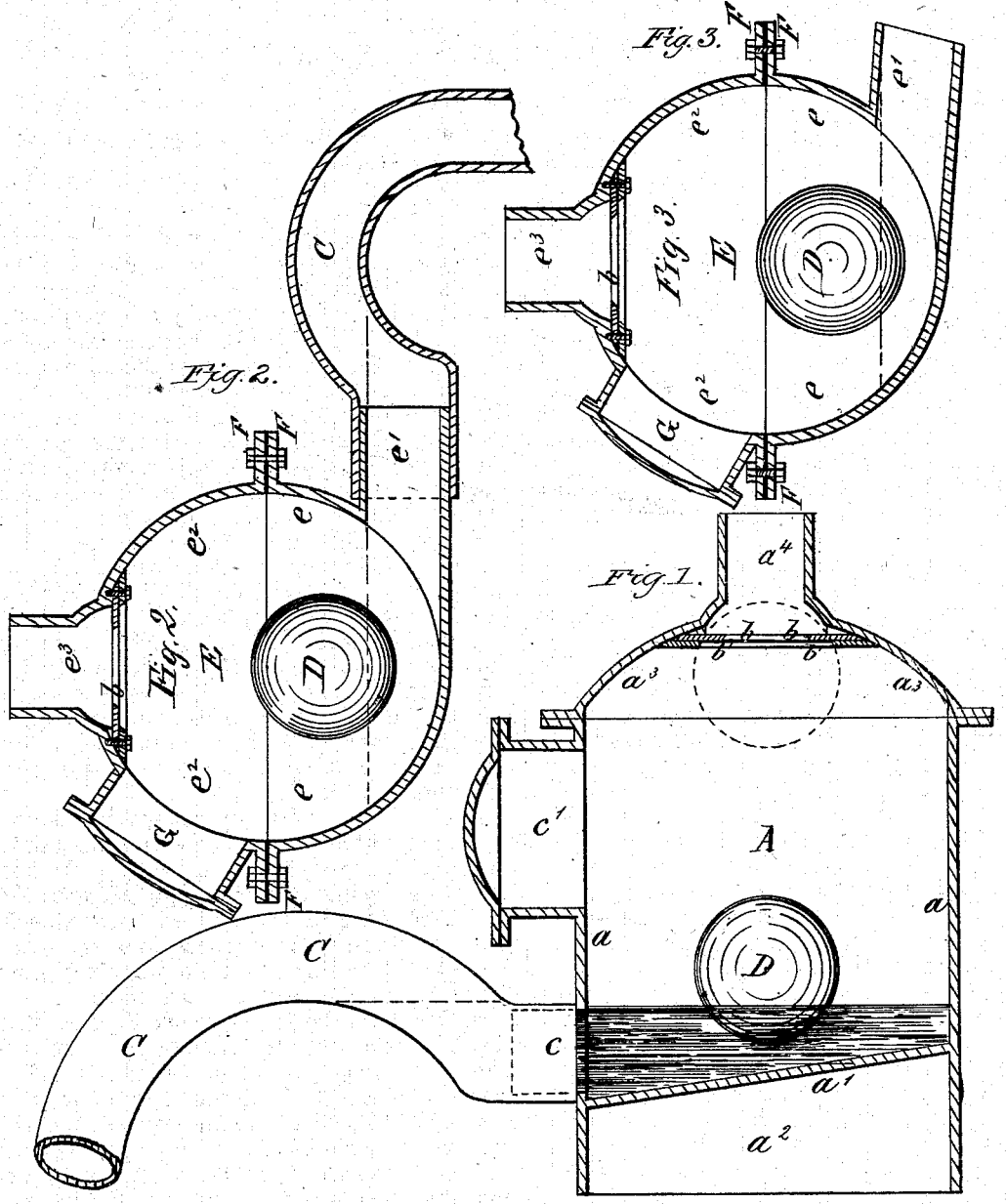
T. BOLDEMANN.

STENCH-TRAP.

No. 186,532. Patented Jan. 23, 1877.



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UNITED STATES PATENT OFFICE.

THEODOR BOLDEMANN, OF WASHINGTON, DISTRICT OF COLUMBIA.

IMPROVEMENT IN STENCH-TRAPS.

Specification forming part of Letters Patent No. **186,532**, dated January 23, 1877; application filed December 18, 1876.

To all whom it may concern:

Be it known that I, Dr. THEODOR BOLDEMANN, of the city of Washington, in the District of Columbia, have invented certain new and useful Improvements in Stench-Traps, of which the following is a specification:

My invention relates to that class of valves particularly adapted as back-pressure or flood valves, in which a free float is carried into its seat by the influx of the fluid into the valve-casing, and is especially designed for use upon drain-pipes connecting dwellings with the sewers.

In my application for Letters Patent filed October 3, 1876, I have shown and described a valve of this character, adapted for use upon drain-pipes having no stench-trap between the house and the sewer—that is to say, upon drain-pipes composed of a series of straight sections—and in this case it became necessary to suspend the float-valve within its casing, to prevent the former from obstructing the outlet-orifice of the latter. But when the ordinary stench-traps are employed upon the line of drain-pipes, which is now the case in almost all new buildings, instead of the usual surface cup-trap, I can obtain a sufficient amount of liquid within the casing to float a free valve at all times, and prevent said valve from obstructing the outlet-orifice.

The stench-traps usually employed have about six inches diameter; hence, I can obtain, even by employing a casing having an inclined bottom, a sufficient depth of water to float the valve, which latter is of a diameter not exceeding eight or nine inches, and, being hollow and of light material, as described in the above-mentioned application, requires not more than three or three and a half inches in depth of water to float the same.

In the accompanying drawings, Figure 1 is a vertical transverse section of a valve constructed according to my invention; and Figs. 2 and 3 are similar views, showing a slight modification of the casing.

A is the casing, which, as described in the above-mentioned application, may be of any convenient or preferred shape—either cylindrical, square, hexagonal, octagonal, or semi-cylindrical—and is constructed substantially in the manner as described in said application; and consists of body a, having an inclined bottom, a^1, and forming a recess, a^2, below said bottom, for the purpose of setting the casing firmly in the ground or upon a suitable foundation. It further consists of the dome-shaped head a^3, provided with the inlet-nozzle a^4, said dome-shaped head being of curvilinear form, or bulging at the point of junction with the nozzle a^4, which also forms the seat for the valve. The seat b consists of a flexible ring, b', clamped or bolted between the dome-shaped head and a metallic ring, or in any other convenient or preferred manner. The casing A is further provided with an outlet-nozzle, c, and a hand-hole, c', all as described in the above-named application.

C is the stench-trap, to which the casing must necessarily be directly connected; and D is the float-valve, consisting of a hollow sphere of wood, metal, or a solid sphere of cork, which may be covered by some flexible material impervious to water, preferably with a rubber covering.

It is evident that the water-level in the casing A must at all times be the same as that in the trap C; hence, the inclination of the bottom of the casing must be regulated according to the arc of the circle described by the stench-trap, which, in ordinary cases, is equal to the diameter of the pipe—that is to say, six inches; hence, a depth of water of six inches is obtained at the outlet-orifice, which depth gradually diminishes with the inclination of the bottom of the casing A, which inclination I find to be sufficient when a depth of water of three inches is obtained at the highest point of the bottom; though, as above stated, this depth may be increased, if found necessary, by decreasing the angle of inclination of said bottom, or by increasing the curvature of the stench-trap.

In some localities, where the distance from the building to the sewer is very small, and therefore would preclude the employment of a casing of considerable height, as is the case in many buildings in this and other cities, I employ a perfectly spherical casing, as shown by Figs. 2 and 3, in which E is the casing, made in two hemispherical parts, the lower part e having the outlet orifice or nozzle e^1, and the upper part e^2 having the inlet-orifice e^3, and

the seat for the float-valve arranged and constructed as already described. Each hemisphere is provided with a broad flange, F, by means of which the two parts e e^2 are bolted or otherwise secured together, and made water-tight by interposing a suitable packer between the two flanges F F, which also serve as a seat or bearing, to set the casing in the ground or upon a suitable foundation. In this case the curvature of the interior surface answers to the inclined bottom of the cylindrical casing; and since an absolute water-level of six inches is obtained at the bottom of the casing, which is much more than is needed to float the valve, I prefer to give the outlet-nozzle e^1 a slight inclination to reduce this level, and also to obtain a greater pressure or fall, to more effectually carry off any solid substances that may enter into the casing. The upper hemisphere is also provided with a hand-hole, G, for the purpose of inspection or repair of seat and valve.

It is evident that with these constructions of casings, and their direct connection with the stench-trap, a valve is produced which is not liable to become choked or impaired in its functions, like all the various valves heretofore employed, and found more or less impracticable, while at the same time said valve is automatic in its action, needing no attention before or after a storm, and embodying all the needed qualities for the purposes for which it is especially designed.

Having now described my invention, what I claim, and desire to secure by Letters Patent, is

1. A stench-trap consisting, essentially, of the ordinary goose-neck trap and a valve-casing, the inlet-orifice of which forms the seat for a free spherical float-valve, substantially as described.

2. The combination, with a valve-casing and a free spherical float-valve, having its seat in the inlet-orifice of said casing, of an ordinary goose-neck stench-trap, the two being connected together, so as to maintain a sufficient water-level within the casing to float the valve at all times, substantially as described, for the purpose specified.

3. The spherical casing consisting of two hemispheres having broad flanges, an inlet-nozzle forming the seat for a valve, and an outlet-nozzle and a hand-hole, in combination with a float-valve, substantially as described, for the purpose specified.

In witness that I claim the foregoing I have hereunto set my hand this 18th day of Decem ber, 1876.

DR. THEO. BOLDEMANN.

Witnesses:

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