B. J. DOWNEY.

Vacuum Valve for Stench Traps.

No. 208,379. Patented Sept. 24, 1878.

Fig. 1

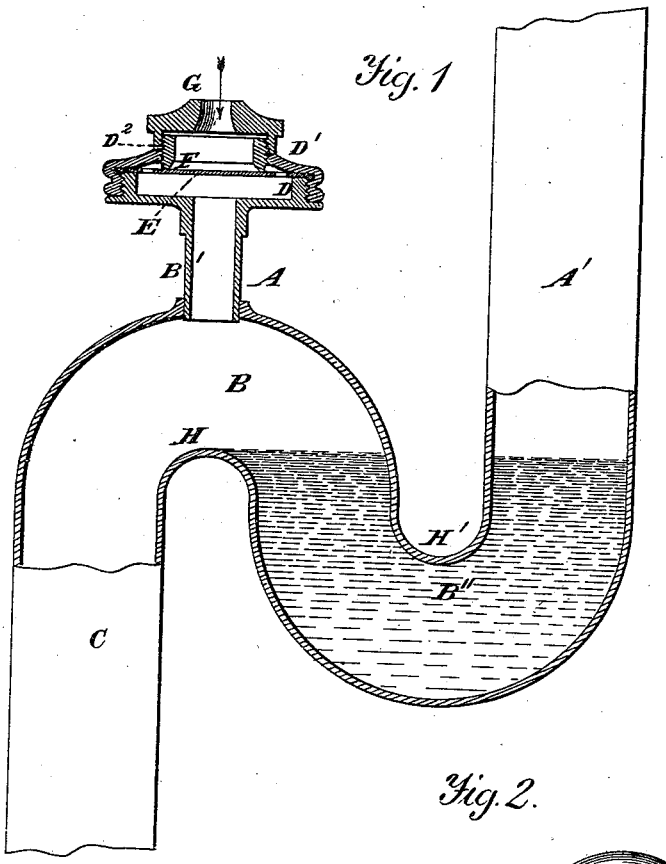


Fig. 2.

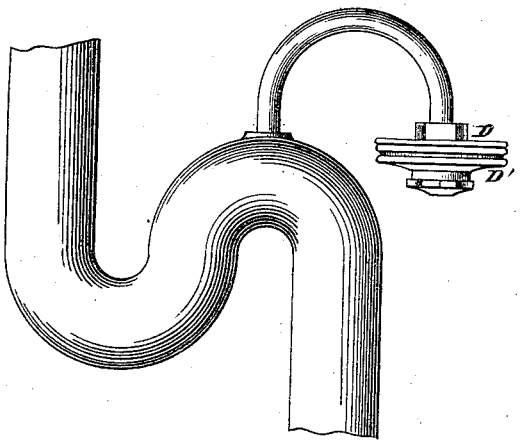
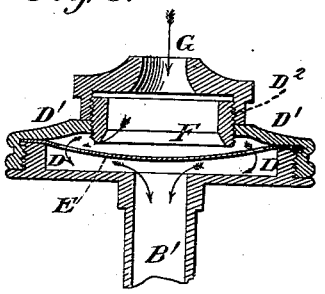


Fig. 3.



Witnesses.
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UNITED STATES PATENT OFFICE.

BERNARD J. DOWNEY, OF WASHINGTON, DISTRICT OF COLUMBIA.

IMPROVEMENT IN VACUUM-VALVES FOR STENCH-TRAPS.

Specification forming part of Letters Patent No. **208,379,** dated September 24, 1878; application filed August 24, 1878.

To all whom it may concern:

Be it known that I, BERNARD J. DOWNEY, of Washington, in the county of Washington and District of Columbia, have invented certain new and useful Improvements in Stench-Traps; and I do hereby declare that the following is a full, clear, and exact description thereof, which 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.

Figure 1 is a sectional elevation of a common stench-trap with my invention represented as attached thereto. Fig. 2 is an elevation of a common stench-trap, showing a different position of my invention as attached thereto. Fig. 3 is a sectional elevation of my invention.

Corresponding letters denote like parts in all of the figures.

This invention relates to stench or water-seal traps. The object of my invention is to prevent the siphonage which takes place in the common stench or water-seal traps. This I accomplish by means of the following-described invention:

A is an orifice in the pipe A′, through which, by means of my invention, I admit the free passage of air into the pipe A′, and also prevent the outflow of water, gas, or air. B is the air space or chamber in that portion of the pipe A′ which forms the water-seal of the common stench-trap, which air space or chamber is formed when the outward or downward flow of water has ceased by passing through the discharge-pipe C. D is a projection so constructed as to present a true smooth surface for the disk-valve E to rest upon. This projection extends slightly above the inside base of the valve. Threads are cut upon the outer edge of this projection for the purpose of receiving and securing the valve-cap D^1. The disk-valve E is held in position by the valve-cap D^1 clamping it upon the projection-seat D. The disk-valve E is made of india-rubber or other equivalent material, and has in it a series of holes situated just inside of its bearing upon the projection D. F is an adjustable projecting valve-seat of the valve-cap D^1, being of less diameter than the diameter of the circle of the series of holes in the disk-valve E, and so constructed as to rest upon the disk-valve when the valve-cap is in its closed position, and is made adjustable by means of its threads D^2 in cap D^1, by means of which its projection can be so increased or diminished as to place such a tension on the elastic disk-valve E that will at all times prevent the escape of gas, air, or water, after which adjustment aforesaid I cement the adjustable valve-seat in its position to prevent the escape of gas, air, or water through the threads D^2, however light the current of the same may be, and at the same time admit the passing in of air to prevent the siphonage. In all other devices the valves are inoperative, except when acted upon by a heavy current. G is an opening in the valve-cap to freely admit the air in upon the disk-valve E.

In the common stench-trap or water-seal traps the discharge-pipe C forms the longer arm of a siphon, and when the waste-water has all passed from the basin or vessel down to a level of the upper curve of the water-trap at H the suction of the discharge-pipe C, acting as a powerful siphon, removes the water from the trap until it is below the level of the lower curve, H′, of the water-trap, when air is admitted, which prevents the further removal of water and permits the escape of the deadly gases of the sewer through the trap. My invention is for the purpose of avoiding this siphonage and producing an absolutely gas-tight stench-trap.

The operation of my invention is as follows: Waste-water, passing down the pipe A′, passes through the trap. In case the pressure of water in the pipe at A′ fills the pipe at B, the water, air, or gas therein is prevented from passing out by the disk-valve E, closed upon the projecting seat F of valve-cap D^1. When the water, by escaping through the educt-pipe C, has been lowered in the water-trap to the level of the upper curve, H, of the water-trap, the suction of the discharge-pipe C causes the elastic disk-valve E to be depressed by the pressure of the air upon it, freely admitted through the opening G, thus removing it from the projecting valve-seat F of the valve-cap D^1, admitting the air thereunder and through the holes in the disk-valve E and the attaching and connecting tubular stem B′ into the pipe

at B, thus preventing the siphonage of the water in the trap B″.

The position of my invention, as shown in Fig. 2, illustrates one of the many positions in which it is capable of performing its functions, as it will, by means of its peculiar construction, operate equally well in any position which the necessities of the situation or surroundings of any stench or water-seal trap may require.

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

1. In combination, the elastic disk-valve E with the adjustable projecting valve-seat F, as and for the purposes substantially as described.

2. In combination, the projection D, the elastic disk-valve E, the adjustable projecting valve-seat F, and the valve-cap D¹, as and for the purposes substantially as described.

3. The tubular stem B′, the valve-seat D, the disk-valve E, the valve-seat F, and the orifice G, in combination with a common stench or water-seal trap, as and for the purposes set forth, substantially as described.

In testimony that I claim the foregoing as my own I affix my signature in the presence of two witnesses.

BERNARD J. DOWNEY.

Witnesses:

W. N. SEVERANCE,

W. F. DOWNEY.