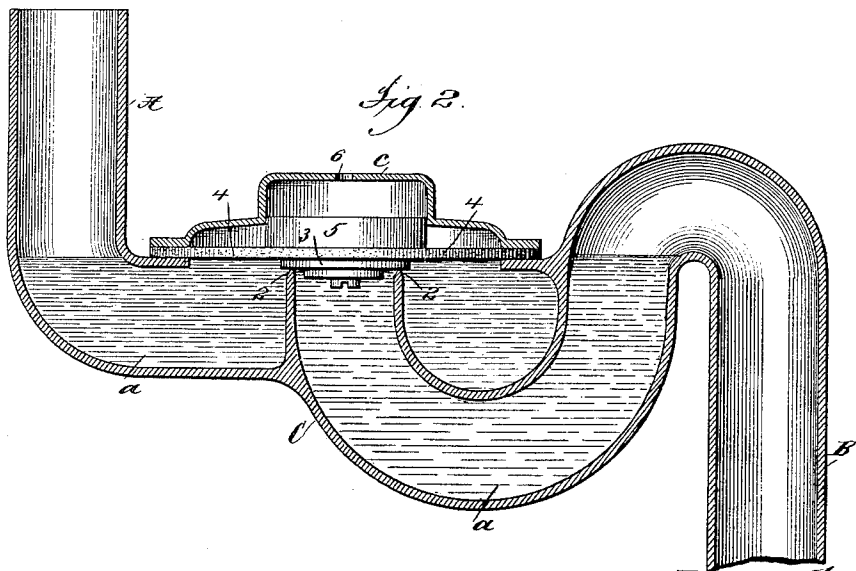
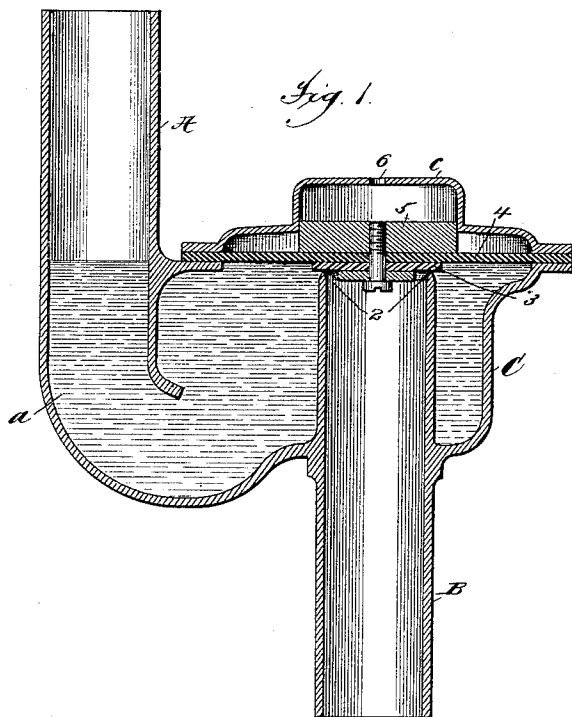


(No Model.)

W. W. ROSENFELD.
PLUMBER'S TRAP.

No. 419,219.

Patented Jan. 14, 1890.



Attest:

Geo. H. Batts.

G. M. Borst.

Inventor

William W. Rosenfield

by Philip Phelps & Hovey
Attys.

UNITED STATES PATENT OFFICE.

WILLIAM W. ROSENFELD, OF NEW YORK, N. Y., ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE SANITARY SUPPLY COMPANY, OF NEW YORK.

PLUMBER'S TRAP.

SPECIFICATION forming part of Letters Patent No. 419,219, dated January 14, 1890.

Application filed February 23, 1888. Serial No. 264,970. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM W. ROSENFELD, a citizen of the United States, residing at New York, county of New York, and State of New York, have invented certain new and useful Improvements in Plumbers' Traps, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention relates to what are known as "plumbers' traps," it being the object of the invention to provide a trap of this class which will at all times afford an adequate and reliable seal against the escape of sewer-gas, and in which the efficiency of the seal cannot be impaired or destroyed by what is known in the art as "siphoning."

As a full understanding of the invention can be best given by an illustration and a detailed description of a trap embodying the invention, all further preliminary description will be omitted and a full description given, reference being had to the accompanying drawings, in which—

Figures 1 and 2 are vertical sectional elevations of two forms of traps embodying the invention.

Referring to said figures, it is to be understood that A represents the inlet-pipe of the trap, and B the outlet or discharge pipe. These two pipes communicate with a chamber C, which forms the body of the trap, and into which the discharge-pipe projects sufficiently far to form a seat 2 for a check-valve 3, which is arranged to open from the discharge and toward the inlet. The valve 3 is connected to and operated by a flexible diaphragm 4, which forms one side of the chamber C, and is of an area considerably greater than the area of the valve.

The operation of the trap as thus far described is as follows: So long as the water in the inlet-pipe A does not rise above the level of the diaphragm 4 the valve 3 will remain upon its seat and close the pipe B against the escape of sewer-gas. Whenever the water in the inlet-pipe rises above the diaphragm 4, as will be the case when the water is discharged from a bowl or other fixture, the pressure of the water exerted upon the dia-

phragm will raise the valve and allow the water to escape through the discharge-pipe B until the surplus water is discharged. The area of the diaphragm 4 being considerably greater than that of the valve, it follows that a very small head of water in the pipe A will exert sufficient pressure upon the diaphragm to raise the valve, even if the latter is quite heavy or is quite heavily weighted. This permits the valve to be sufficiently weighted to be held closely on its seat and close the discharge-pipe against the escape of gas when the water is not flowing. To effect this the valve will preferably be provided with a weight or weights, as 5, which will act to hold it on its seat. The diaphragm 4 and weight or weights 5 will preferably be inclosed by a cap-piece c, having a vent-opening 6 to allow the air to circulate and prevent the cushioning of the diaphragm and to afford the necessary pressure to close the valve.

The valve constructed and arranged as described will in most cases afford an efficient and reliable trap to prevent the escape of sewer-gas; but the trap will preferably be provided, in addition to the valve, with a water-seal a, and this seal may be arranged either upon the inlet side of the valve, as shown in Fig. 1, or upon the discharge side of the valve, as shown in Fig. 2. It will readily be seen that in either case any siphoning action—that is to say, any suction produced in the discharge-pipe B—will have the effect of closing the valve 3 and holding it in its closed position, so as to prevent the withdrawal of the water forming the seal a, and thus preserve the seal intact.

The form and arrangement of the valve 3 and diaphragm 4, and also the arrangement of the water-seal, may of course be varied considerably from what is shown without departing from the essential features of the invention; but the forms shown are deemed sufficient to fully illustrate the principle of the invention.

What I claim is—

1. The combination, with the waste-pipe, of a valve closing said pipe and a flexible diaphragm carrying said valve, said diaphragm being exposed outside of the valve-seat to

pressure from the inlet to open the valve, and being subjected to atmospheric pressure on its side opposite the valve-seat, substantially as specified.

- 5 2. The combination, with the inlet-pipe A, the waste-pipe B, having a valve-seat 2, a chamber C, having an opening 6 to the atmosphere, and a flexible diaphragm 4 within said chamber, of a valve 3, attached to the center
10 of said diaphragm and adapted to be closed against said seat by atmospheric pressure,

said diaphragm outside of and around the valve-seat being exposed to pressure from said inlet-pipe to open the valve, substantially as specified.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

W. W. ROSENFELD.

Witnesses:

J. J. KENNEDY,
T. H. PALMER.