W. A. PITT.
Sewer-Traps.

No. 199,100. Patented Jan. 8, 1878.

Fig. 1.

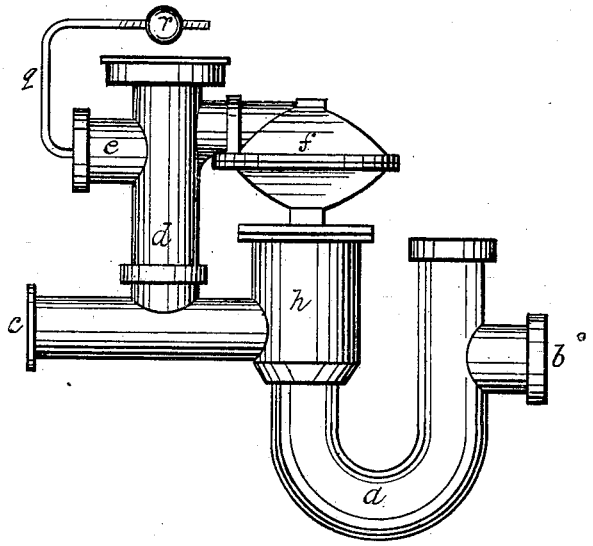
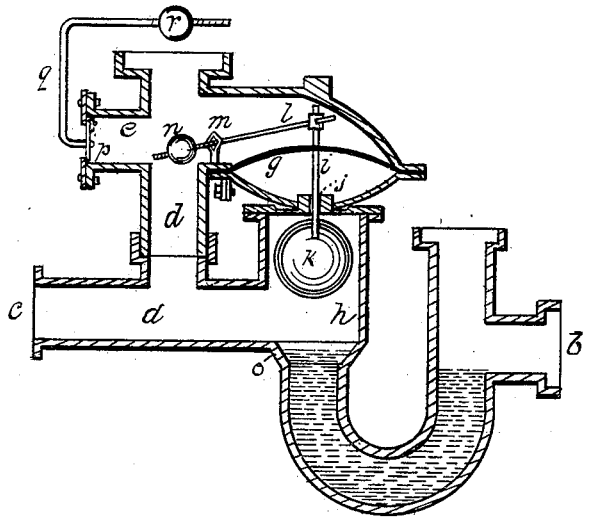


Fig. 2.



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UNITED STATES PATENT OFFICE.

WILLIAM A. PITT, OF NEW YORK, N. Y.

IMPROVEMENT IN SEWER-TRAPS.

Specification forming part of Letters Patent No. **199,100**, dated January 8, 1878; application filed May 17, 1877.

To all whom it may concern:

Be it known that I, WILLIAM A. PITT, of the city of New York, in the county and State of New York, have invented a new and useful Improvement in Traps for Sewer-Pipes, which improvement is fully set forth in the following specification and drawing accompanying same.

My present invention consists, first, in an improved construction and arrangement of the mechanism for closing the trap against the action of the back pressure of sewer-gas; second, in an improved construction and arrangement of the mechanism for opening a connection in the trap-pipe on the sewer side of the trap with the outside of such pipe, in the event of an attempted siphoning out of the water in the trap by sewer-draft.

In the drawings illustrating my invention, Figure 1 is a front elevation of a sewer-trap containing my improvements, and Fig. 2 is a vertical sectional view of the same.

a is the trap; *b*, the house end of the trap-pipe; *c*, the sewer end of the same. In the sewer-end of the trap-pipe is placed a vertical pipe, *d*, to which is attached one end of a horizontal branch pipe, *e*. The other end of this last-mentioned pipe leads into a lentil-shaped chamber, *f*. Centrally and between the flanges of the two sections of this chamber is secured a diaphragm, *g*, of leather, rubber, or other suitable elastic material. This chamber is situated over and connected with the chamber *h*, located immediately over the sewer end of the trap. A rod, *i*, passes through and is connected to this diaphragm, also through the opening *j* and down into the chamber *h*, and has attached to it at its lower end a ball, *k*, made of sheet metal or very thick rubber. The upper end of this rod *i* is slotted, so as to receive one end of the balance-rod *l*, the latter being balanced in a knife-blade fulcrum at *m*, and containing at the other end a ball, *n*, running on a screw-thread, in order to properly adjust such ball *n*, and to keep the ball-valve *k* off of the valve-seat *o* of the trap, when the back pressure of the sewer-gas is not acting upon the diaphragm *g*.

p is a valve, hinged at its upper end to the vertical wall of the pipe *d* and opening inward. To the outer surface of this valve is secured one end of a rod, *q*. This rod is bent or curved round to a point over the top of the vertical pipe *d*. On the end of this bent rod is placed a ball, *r*, so adjusted on the end that, in case of no suction being upon the inside of the sewer-pipe, the valve *p* will remain closed; but upon the slightest exhaust of the air in the interior of such pipe by the "sewer-draft" or "vacuum," so called, the said valve will open, and establish at the sewer end of the trap-pipe a communication with the open air.

The operation is as follows: When the back pressure of sewer-gas is so strong as to tend to force its way through the water that rests in the trap and on into the house-pipes, such pressure will commence to operate upon the diaphragm *g*, forcing it down, which, at same time, will carry down the rod *i* and its attached ball, and cause such ball to seat itself on the top of the sewer end of the trap, and thus effectually close the trap and its contained water against the passage of the sewer-gas.

The ball, being so seated, will not interfere with the action of the trap, as it is made of sheet metal or other light material, and will rise for the passage of anything through the trap, and again reseat itself after such passage, notwithstanding the gas-pressure above referred to.

On the sewer end of the trap-pipe being relieved from the pressure of the sewer-gas, the pressure on the diaphragm will be relieved, and the ball *k* will move off the seat *o* and into its original position by reason of the other ball or weight *n* counterbalancing it.

The combination and arrangement of the mechanical means described for producing these results are more positive and reliable in its working, as well as more durable than what has been heretofore adopted. It is also more easy of access for adjustment and for repairs, it being nearly all located above the diaphragm.

When there is a draft through the sewer which has a tendency to siphon out the water from the trap, the valve *p*, which is counterbalanced by the ball or weight *r*, will open inward, relieving the sewer end of the trap from such draft by establishing a communication near it with the external air. As soon as

the draft or suction through the sewer ceases the valve *p* will close, and the normal action of the trap be again established.

The combination and arrangement of the mechanical means described for producing the last-referred-to results are more simple and efficient than have been heretofore employed for the purpose. The valve is hinged and center-balanced, and dispenses with a stationary fulcrum, while, at same time, it offers an equalizing resistance under all gradations of force resulting from the siphoning operation. It is also more sensitive than other constructions heretofore used for the purpose.

I claim—

1. The combination of the diaphragm with the ball-valve and the counterbalancing-weight, arranged in the passages of the sewer end of the trap, substantially as described.

2. The combination of the hinged valve with its balancing-weight and rod, arranged on the sewer end of the trap, substantially as described.

WILLIAM A. PITT.

Witnesses:
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