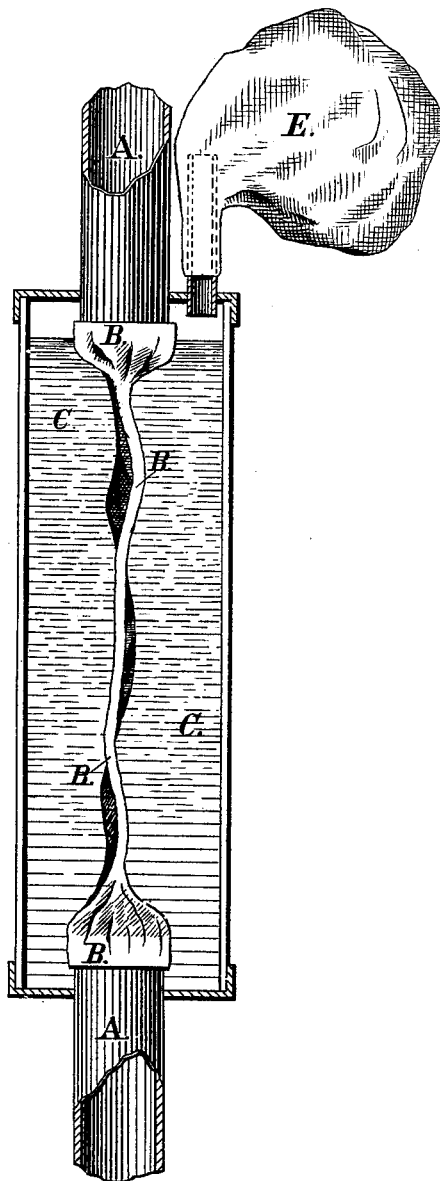


W. WILSON.
Gas-Check for Waste and Sewer Pipes.
No. 220,559. Patented Oct. 14, 1879.



Witnesses:
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UNITED STATES PATENT OFFICE.

WILLIAM WILSON, OF OAKLAND, CALIFORNIA.

IMPROVEMENT IN GAS-CHECKS FOR WASTE AND SEWER PIPES.

Specification forming part of Letters Patent No. **220,559**, dated October 14, 1879; application filed April 4, 1879.

To all whom it may concern:

Be it known that I, WILLIAM WILSON, of Oakland, county of Alameda, and State of California, have invented certain Improvements in Gas-Checks for Waste-Pipes and Sewers; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawing.

My invention has reference to an improved valve for preventing the foul air or gas which is generated in cess-pools and sewers from passing back through the waste-pipes of basins, sinks, and water-closets, and entering the rooms of houses; and it consists of a collapsible water-duct or conduit inserted in the length of the waste-pipe, and surrounded by a water-chamber, so that the outside pressure collapses it when no water is passing through it, thus forming a gas-tight joint, as herein-after more fully explained.

The accompanying drawing is a sectional view (in a vertical plan) of my improved valve.

Let A A represent two separated sections of the waste-pipe which leads from a basin, sink, or other drain in a house to the sewer. The ends of these sections I connect by a short section, B, which is made of pliable material, such as india-rubber, oiled silk, or other yielding fabric or material that is water-tight and durable. This pliable section forms a part of the main pipe, and can be made as long or short as desired, and its ends are tightly united to the ends of the section pipe A A, so that the water which passes through the waste-pipe will be compelled to pass through this pliable section. In practice I shall usually use a heavy quality of pliable india-rubber tubing, which is made flat like a ribbon, so that it will naturally close together when there is no pressure inside of it. Around this pliable section I construct a tight chamber, C, which is larger in diameter than the waste-pipe, and long enough to extend above and below the section B, and its ends are tightly secured to the pipe A above and below the section, the upper end extending somewhat higher than the upper end of the section. This outside chamber, C, I keep filled to near its top with

water or other liquid, the pressure of which upon the pliable section will cause it to close tightly together and make a gas-tight joint.

I can either connect this outside chamber, by means of a small pipe, with the overflow of the basin, sink, or drain, in order to keep it filled with water, or I can provide a special means for supplying water occasionally to keep the chamber filled; but usually I shall fill the chamber with glycerine or other liquid, and seal it tight, so the liquid will not evaporate, and provide for expansion by attaching an air-chamber or expansible balloon, E, to the chamber C, so that when the pliable section is swelled by the water passing through it the expansion of the liquid is provided for.

When no water is passing through the waste-pipe the pressure of the water in the outside chamber will collapse the pliable section B so closely as to effectually prevent the passage of foul air or gas through it, but when water descends through the waste-pipe in sufficient volume to overcome the pressure of water in the outside chamber, the pliable section will be opened so as to allow the water to pass through it; after which it is immediately closed again by the outside pressure. The expansion of the tube B causes the liquid to rise in the outside chamber, which is permitted by the air-chamber or balloon E.

Springs or other elastic pressure might be applied on the outside of the pliable section to collapse it; but I prefer the liquid pressure.

By this means I can effectually trap sewer-gas so as to prevent it from passing into houses. By actual test, with a rude model, I have proven that gas from the city mains will not pass through a pipe thus trapped, even when the full pressure of the gas was turned into the pipe and allowed to stand twelve hours.

The valve is quite simple and cheap, and can be made ready to be introduced in the length of the waste-pipe as an ordinary section.

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

1. The collapsible section B, introduced in the length of a waste-pipe, in combination

with an elastic outside pressure which is arranged to produce a stricture of the section and form a gas-tight joint when no water is passing through it, substantially as and for the purpose described.

2. A gas-trap for water-pipes, consisting of the collapsible section B, which is arranged to form a part or section of the waste-pipe, in

combination with the outside liquid-chamber, C, substantially as above specified.

In witness whereof I have hereunto set my hand and seal.

WILLIAM WILSON. [L. S.]

Witnesses:

WM. FLOYD DUCKETT,
JOHN P. SMITH.