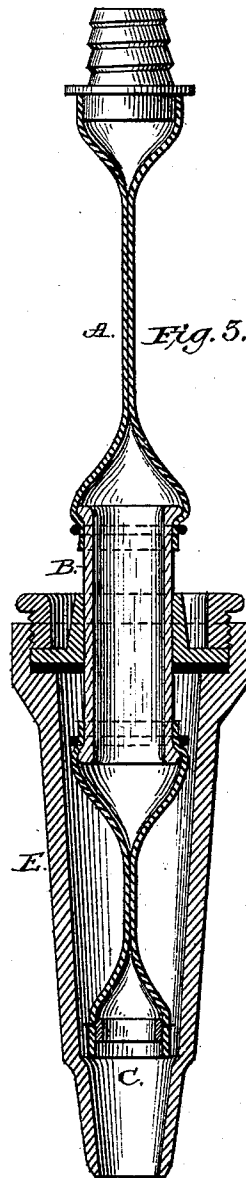
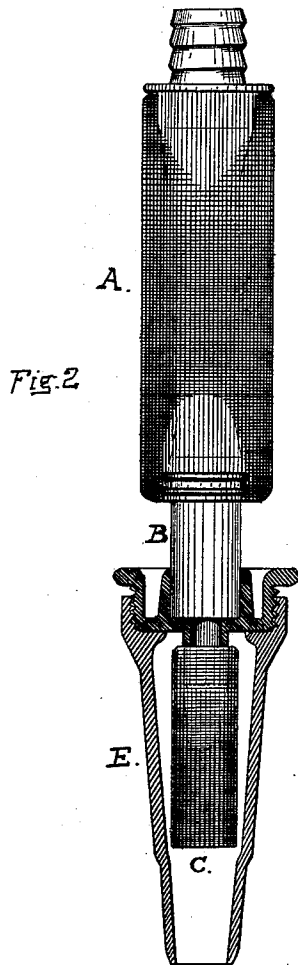
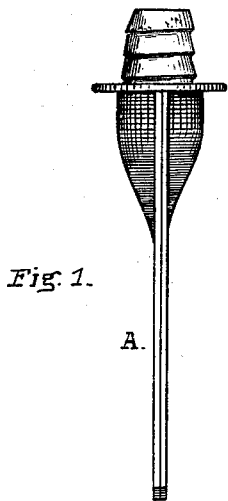


W. WILSON.
Valve for Sewer-Traps, &c.

No. 225,776.

Patented Mar. 23, 1880.



Witnesses:

J. L. Boone

Wm. A. Clark

Inventor:

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Atty.

UNITED STATES PATENT OFFICE.

WILLIAM WILSON, OF OAKLAND, CALIFORNIA.

VALVE FOR SEWER-TRAPS, &c.

SPECIFICATION forming part of Letters Patent No. 225,776, dated March 23, 1880.

Application filed January 19, 1880.

To all whom it may concern :

Be it known that I, WILLIAM WILSON, of Oakland, Alameda county, State of California, have invented certain new and useful Improvements in Valves; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings.

My present invention is an improvement on the collapsible valve for which Letters Patent No. 220,559 were issued to me on the 14th day of October, 1879.

In my former patent the collapsible section passed through a water-chamber, and the surrounding pressure served to collapse and close it until a superior internal pressure forced it open. I have discovered that I can dispense with this surrounding water-chamber, and at the same time greatly improve the action of the valve, so that water, steam, or gas can only pass through it in one direction.

In its simplest form my invention can be applied by simply opening one end of the collapsible tube and connecting it securely to the circumference of the pipe, so that it will hang loosely in the pipe. In this condition the fluid or gas which enters its open end will pass readily through the collapsible pipe by its gravity or by pressure, while the collapsed end will prevent any return of the fluid or gas in an opposite direction.

In the present instance I have represented a compound arrangement of collapsible valves, which gives a better adaptation of this style of valve for trapping a waste-pipe, in order to prevent the return of gas through the waste-passage, all as hereinafter described.

Referring to the accompanying drawings, Figure 1 is a view of the collapsible valve. Fig. 2 is a view of the same with the secondary valve combined with it, the chamber or portion of pipe surrounding this latter valve being in section. Fig. 3 is a vertical section taken through Fig. 2.

A represents the collapsible tube. This is a flat tube which remains collapsed until a pressure inside opens it. I prefer to make this tube by taking two flat strips of india-rubber, leather, or other pliable material, and placing them together, and then uniting their edges so that the two sides will lie close together,

but be capable of opening and forming a tube when an inside pressure is applied.

As above stated, the simplest form of my collapsible valve is to take this short flat pliable tube and open one end, and secure this open end to the inside circumference of the pipe, either by clamping the edges of the open end between the joints of the pipe or placing a ring inside the open end and then forcing the ring into the pipe, so that the flexible tube will hang down in the pipe. Water, steam, or air introduced into the pipe above the valve will then run down through the collapsed tube; but it will be impossible for anything to pass upward through the tube, as the lower end of the tube remains closed. For waste-pipes generally, however, I use the device shown at Fig. 2, because by that arrangement I am able to retain a quantity of water in the pipe between two collapsible valves, and thus insure greater security.

B is a short metal or other rigid tube having the upper end of a short collapsible tube, C, secured to its lower end, and the lower end of a collapsible tube, A, secured to its upper end.

E is a short conical tube, the lower end of which is secured to the waste-pipe at any desired distance below the sink or basin, so that the tube forms an enlarged portion of the waste-pipe. The tube B, I place in the upper or large end of the conical section E, so that the short collapsible tube C will hang down inside of the conical section. I then secure the tube B in place by means of cement or other fastening that will hold the tube B in place, and make a tight joint around it. This leaves a portion of the tube B projecting down into the conical section and a portion extending above it.

The collapsible tube A, which is secured to the upper end of the tube B, extends up, and its upper end is connected with the waste-pipe above, which leads to the sink, basin, or other source from which the waste is to proceed.

It will now be seen that any water passing down the waste-pipe will enter the upper collapsible tube, A, and expand it, and pass through into the short tube B, and as long as water passes through this upper collapsible tube it will also pass down through the lower

collapsible tube, C; but as soon as all the water has passed through the upper tube this tube will collapse by the outside atmospheric pressure, and thus maintain the tube B full of water all the time by the vacuum in the upper end of the tube. The lower collapsible tube hangs in a chamber, and is surrounded with air, so that as soon as water ceases passing through it it will also collapse. Any back pressure, therefore, will find this lower tube tightly closed, so that it will be impossible for it to get back through the tubes.

The lower collapsible tube prevents the return of the gas, while the upper collapsible tube serves to retain a body of water in the pipe, which gives additional security; but the lower tube is all that is actually necessary.

This arrangement is simple and entirely effective. It makes a perfect trap, which can be used for steam, water, or gas.

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

1. The combination of the tube B with the enlargement or pipe-section E, having a nozzle or socket to receive the lower end of said tube, and the collapsible tube C, with its upper end fitted upon a downward tubular extension or pipe on the section E, substantially as and for the purpose set forth.

2. The combination of the tube B with the collapsible tube A, connected to its upper end, and the enlargement or conical tube E, having a socket to receive the lower end of the pipe or tube B, and a nozzle or downward tubular extension, upon which is fitted a second collapsible tube, C, substantially as and for the purpose specified.

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

WM. WILSON. [L. S.]

Witnesses:

JNO. L. BOONE,
W. F. CLARK.