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UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN STENCH-TRAPS.

Specification forming part of Letters Patent No. **110,087**, dated December 13, 1870.

To all whom it may concern:

Be it known that I, DANIEL C. STILLSON, of Charlestown, in the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in Stench-Traps; and I do hereby declare the same to be fully described in the following specification and represented in the accompanying drawings, of which—

Figures 1 and 2 denote central and longitudinal sections of my said invention, taken in planes at right angles to each other. Fig. 3 is a side elevation thereof.

My invention has reference to that class of devices which is applied to the waste-pipes of sinks for preventing the stench or noisome effluvia, generated in the drains or cesspools with which such sinks may be in communication, from rising or escaping into the rooms or apartments in which such sinks may be.

I am aware that various means have been devised and many expedients resorted to for remedying this evil, and that mechanism has been so constructed and applied to the sink and sewer-pipe as to cause the water itself, in passing from the sink to the sewer, to constitute a "stench-tight valve." Therefore I make no claim to such principle in the abstract.

The object had in view in making my invention was not only to produce a simple and reliable means for accomplishing such result, but also to provide a means whereby the device should be prevented from becoming inoperative by the freezing of the water therein during extreme cold weather, as well as to afford a means whereby the auxiliary pipe, should it become fouled or clogged, could be readily cleared of obstructions; and my invention consists in so combining with the main pipe or the main and auxiliary pipes a stop-cock, so constructed and arranged that by turning the latter in one direction a "water-valve" or liquid diaphragm impervious to stench shall be formed, while, by turning it in the opposite direction the liquid forming the said "valve" shall be discharged or drawn off and a "direct" passage be opened through the main pipe.

In the said drawings, A denotes a portion of the "main" waste or drain pipe, whose upper end is to be attached to a sink, the said pipe being provided with a stop-cock, B, (having a passage, *c*, made transversely through its plug

or frusto-conical valve *d*,) formed and applied thereto, as shown in Fig. 1.

D is a bent tube, whose inner diameter or bore is of a somewhat greater size than either of its arms *a b*, the object of such enlargement being to form an air-chamber in the upper part of the tube. The shorter arm, *a*, is connected to and opens into the main pipe just above the cock B, as shown in Fig. 1; while the other arm, *b*, extends down and opens into the said main pipe below the cock, as seen in such figure.

E is an opening or port made in the upper wall of the pipe D, the same being provided with a screw-plug, F. The object of the said port is to enable the tube or its arms to be readily cleared of any obstruction, should it become necessary.

Having described the device as shown in the drawings, the operation thereof is as follows: If we suppose the upper end of the pipe A to be attached to a sink and its other end to be connected with a drain-pipe or sewer, we first shut the cock B, and thereby prevent the flowage of the water in a direct line through the main pipe, and cause a diversion thereof upward and through the pipe D. By the peculiar construction of such latter pipe and its arrangement with respect to the cock B and the pipe A, a column of water will always remain (in accordance with the well-known law of the equilibrium of fluids) at the same height in the pipe A and the arm *a* of the pipe D, whatever may be the relative length or capacity of the two. In the present case the water-line will be shown by the dotted line *x x* in Fig. 1. This column of liquid constitutes what I term the "water-valve." The opening *c* of the arm *a* being at a point below the said water-line, such water serves as a diaphragm or impassable barrier to the unwholesome odors generated in the drain or sewer.

I do not limit my invention to the precise form as shown and described, as such may be somewhat varied and still contain the principle of my invention.

From the above it will be seen that while the device or trap is in use, although the water is allowed to flow freely through it, yet a sufficient volume is retained to always maintain the orifice or mouth *c* of the arm *a* submerged, and thereby rendering it impossible for any

noisome effluvia to rise up and escape through it; also, that the cock affords a ready means of letting off the water constituting the water-valve, so as to prevent the freezing thereof during extreme cold weather.

What I claim is as follows:

The combination, with the main discharge-pipe of a sink, of an auxiliary pipe, D, or duct, and a stop-cock, B, so formed and arranged that

by turning the latter in one direction a "water-seal" shall be formed, while by turning it in the opposite direction the liquid forming such seal shall be discharged through the main pipe, in manner and for the purpose set forth.

DANIEL C. STILLSON.

Witnesses:

F. P. HALE,

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