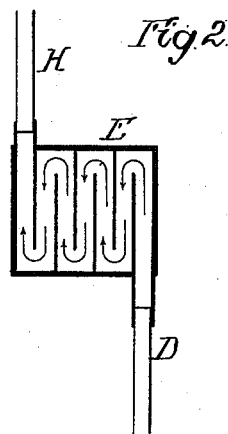
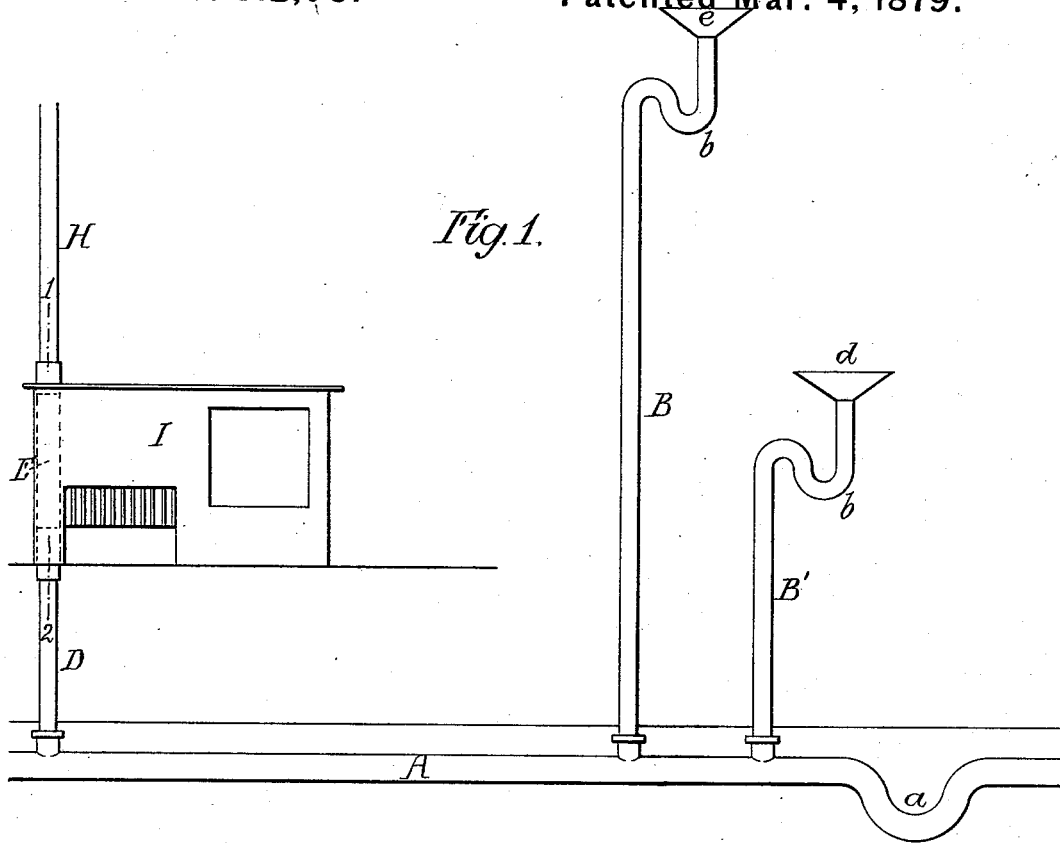


A. W. RAND.
 Means for Ventilating Sewer-Pipes and Deodorizing
 the Foul Air Therefrom.

No. 212,981

Patented Mar. 4, 1879.



Witnesses
 Henry Howson Jr.
 Harry Smith

Inventor
 Abraham W. Rand
 by his Attorneys
 Howson and Son

UNITED STATES PATENT OFFICE.

ABRAHAM W. RAND, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN MEANS FOR VENTILATING SEWER-PIPES AND DEODORIZING THE FOUL AIR THEREFROM.

Specification forming part of Letters Patent No. **212,981**, dated March 4, 1879; application filed January 22, 1879.

To all whom it may concern:

Be it known that I, ABRAHAM W. RAND, of Philadelphia, Pennsylvania, have invented a new and useful Improvement in Means for Ventilating Sewer-Pipes and Deodorizing the Foul Air therefrom, of which the following is a specification:

The object of my invention is to prevent the foul air in the sewer-pipes of dwellings from passing upward through the waste-pipes of closets, wash-basins, &c., and to render such foul air innocuous by subjecting it to heat in its passage through a ventilating-pipe.

In the accompanying drawings, Figure 1 is an elevation of a sewer-pipe and waste-pipes of a dwelling with my improvement, and Fig. 2 a transverse section on the line 1 2.

A is the sewer-pipe, placed beneath the floor of the cellar, and communicating with the sewer, the pipe having the usual trap *a*. B B' represent the waste-pipes of water-closets, wash-basins, or sinks, each pipe having the usual trap *b*, and communicating with the main pipe A. In this pipe there is always more or less foul water and trapped air, which is rendered fetid by contact with the water and with foul matter which adheres to the inner surface of the pipe.

When the contents of a closet or wash-basin are discharged into one of the waste-pipes, they necessarily impart a temporary pressure to the air in the main pipe A, and the air is consequently forced upward through another waste-pipe, and through the trap *b* of the same. Thus, if *d* is the basin of a water-closet, and *e* a wash-basin, and the contents of the former be discharged through the waste-pipe B' into the main pipe A, foul air will be forced through the pipe B, and through its trap into the room where the wash-basin *e* is situated.

Attempts have been made to remedy this evil by forming a communication between the pipe A and a flue, or by carrying a ventilating-tube from the pipe A to a point above or near the roof of the building; but this is only a partial remedy, for the foul air often enters dwellings through open windows or doors, and where there are a number of houses with such ventilating-pipes, the air in the neighborhood must necessarily be fouled with the exhalations.

I entirely remedy the evil by combining the main pipe A with a ventilating-tube, D, which communicates with a box or receptacle, E, exposed to the heat of any stove, range, or fire-place, and having an outlet-tube, H.

The box E, in the present instance, forms one end of the fire-place of a range, I, and is exposed to the direct action of the burning fuel in the same, the box being perfectly tight, and having partitions which compel the foul air to take a zigzag or circuitous course before it can escape.

In passing through the box, and in intimate contact with the heated plates of which the said box is composed, the foul air from the pipe A is rendered innocuous, and the pipe is so thoroughly ventilated that no air can pass upward from it through the waste-pipes.

The box E may form a part of any ordinary stove or fire-place, or of a special heater, and may be constructed in different ways. A coiled or zigzag tube may, for instance, be substituted for the box, providing it is subjected to the desired heat.

While the tube H may communicate with any flue through which the products of combustion are conveyed to the chimney, I prefer to carry the tube upward through the flue and chimney to a point at or near the top of the same, so as to insure the most thorough ventilation of the pipe A.

I am aware that the gases from a sewer have been conducted to the space below the grate of a furnace. This, therefore, I do not claim; but

I claim as my invention—

The combination of the sewer-pipe A and the waste-pipes communicating therewith, with a box, E, or other equivalent receptacle, attached to or forming part of a range, stove, fire-place, or other heater, and exposed to the fuel therein, but having no communication therewith, and with the tube D and outlet-tube H, all substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ABRAHAM W. RAND.

Witnesses:

WILLIAM J. COOPER,
HARRY SMITH.