

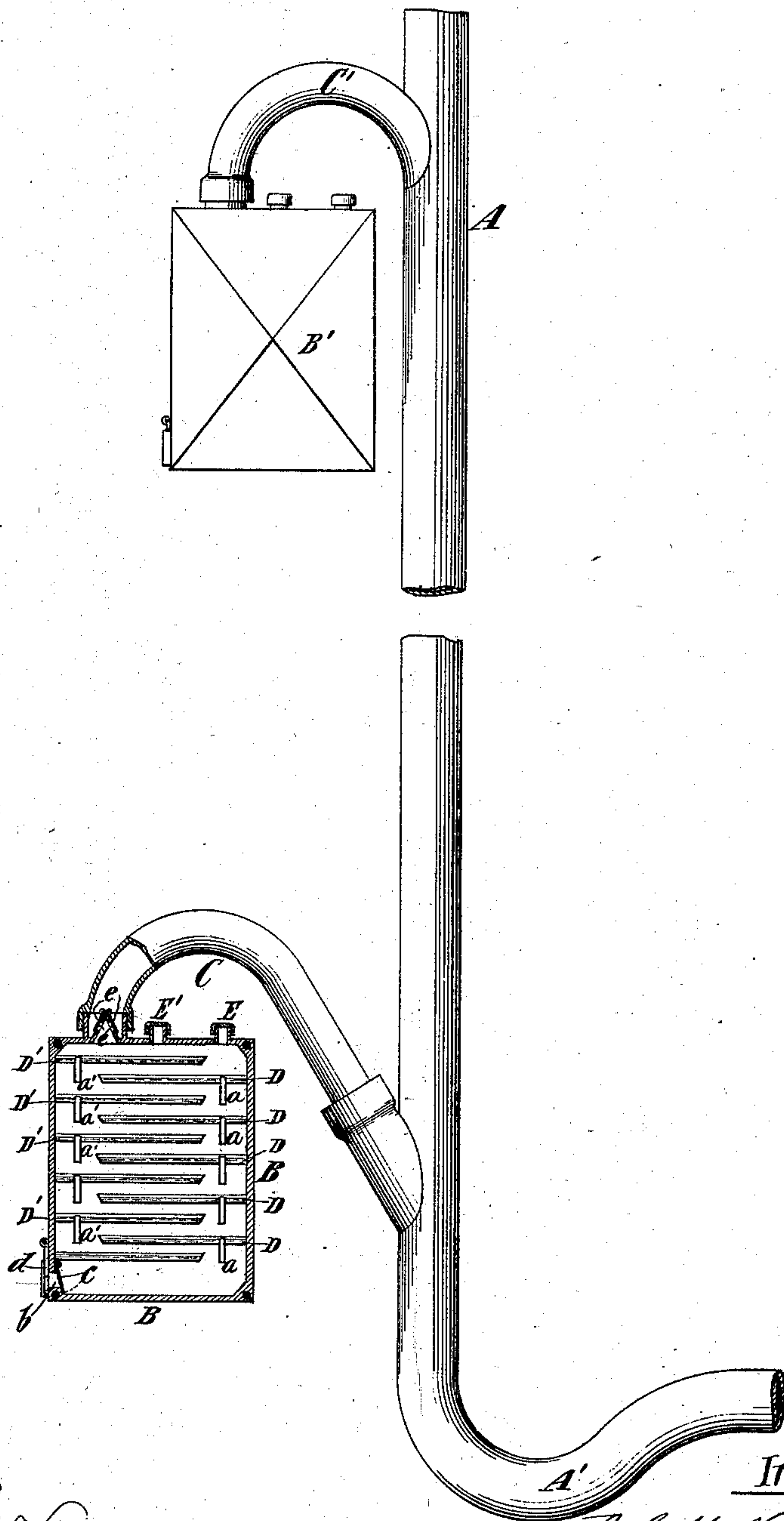
(No Model.)

A. G. W. RANKIN.

APPARATUS FOR DISINFECTING WASTE PIPES.

No. 255,019.

Patented Mar. 14, 1882.



Witnesses:-

*Fred. Haynes*  
*Es. Glatzmayer*

Inventor:-

*A. G. W. Rankin*  
*by Fred. Haynes*  
*Attorney*



# UNITED STATES PATENT OFFICE.

ABRAM G. W. RANKIN, OF JERSEY CITY, NEW JERSEY, ASSIGNOR OF ONE-HALF TO WALTER H. GILSON, OF SAME PLACE.

## APPARATUS FOR DISINFECTING WASTE-PIPES.

SPECIFICATION forming part of Letters Patent No. 255,019, dated March 14, 1882.

Application filed July 7, 1881. (No model.)

*To all whom it may concern:*

Be it known that I, ABRAM G. W. RANKIN, of Jersey City, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Apparatus for Disinfecting Soil or Waste Pipes in Buildings, of which the following is a specification.

In soil or waste pipes of buildings a reduction of pressure therein below the atmospheric pressure is often produced either by a strong wind blowing over the top of the pipes, if the latter be open at the top, or by the passage of water down them, if the pipes be closed at the top; and the object of my invention is to afford provision for the passage into such a pipe of a current of carbolized air or air charged with some other disinfecting substance, whenever a partial vacuum shall be created in such pipe, as before described.

To this end the invention consists in the combination, with a soil or waste pipe, of a cabinet or chamber adapted to contain carbolic acid or any other disinfecting substance, and through which air may pass, and which is so connected with said pipe that whenever a partial vacuum is produced therein a current of carbolized air or air charged with some other disinfectant is caused to pass from said cabinet or chamber into said pipe to supply the deficiency. The said cabinet or chamber is provided with an air-inlet at the bottom, closed by an inwardly-opening valve which will automatically open to permit the inflow of air, but will prevent the outflow of air, and a similar valve may be placed at the upper part of the cabinet or chamber to prevent the passage of air from the soil or waste pipe into the cabinet or chamber, all as more fully hereinafter described.

The accompanying drawing represents a partly sectional elevation of a soil-pipe having my improvements applied thereto.

A designates a soil-pipe, which extends from the top, or near the top, of a building downward to a trap, A', from whence the water passing down the pipe is conducted to the sewer.

Near the bottom of the pipe A, and in the lower part of the building, is a cabinet or chamber, B, which is connected at its upper end by a pipe, C, with the pipe A, and the internal construction of which is clearly shown in the

drawing. The cabinet B may be of any suitable size, and composed of wood or metal constructed so as to be air-tight.

Within the cabinet or chamber are two series of horizontal shelves or trays, D D', which have upturned edges, so that they will serve as pans for retaining a quantity of liquid upon them. The two series of shelves, trays, or pans are alternated from top to bottom of the cabinet or chamber B, and the pans of the two series extend from different sides of the cabinet or case nearly across the same.

In each of the pans D D' is an outlet or overflow pipe, *a* or *a'*, extending slightly above the bottom thereof, and regulating the depth of liquid in the pans.

In the top of the cabinet or chamber B are inlet-nozzles E E', through which carbolic acid or other liquid having disinfecting properties may be introduced. The liquid poured in through the nozzle E falls into the top pan of the series D, and when the liquid therein reaches the top of the outlet or overflow pipe *a* the additional liquid introduced through the nozzle E will overflow into the next pan D of the series. The liquid poured in through the nozzle E' falls into the top pan D' of the second series, and overflows from one pan to the next below until all the pans of the series are filled.

At the bottom of the cabinet or chamber below the bottom pan is an air-inlet opening, *b*, which is closed by an inwardly-opening valve, *c*, made of some light material, so as to open and close automatically to permit the entrance of air, but prevent the escape of any odor from the cabinet or chamber through said inlet; and outside said opening is a slide-valve or damper, *d*, which may be adjusted to more or less close the opening *b*, and thus regulate the quantity of air admitted.

At the top of the cabinet or chamber, and in the mouth of the pipe C, is arranged a valve, or, as here shown, two valves, *e*, which are very light, and prevent the passage of air from the pipe A backward through the pipe C. Whenever a partial vacuum is created in the pipe A, either from the wind blowing across its top, if the top is open, or by the downward passage of water through it, if the top of the pipe is



closed, a current of air will be produced through the cabinet or chamber B and pipe C into the pipe A, and as such air, when it enters the pipe A, is carbolized or charged with whatever disinfecting agent is contained in the cabinet or chamber, it will neutralize the noxious gases and foul air in the pipe A, and thoroughly disinfect the air in the said pipe. The valve *c* prevents any air, after being charged with the disinfecting agent, from passing downward out of the cabinet or chamber, and the valves *e* prevent any foul air from entering the cabinet or chamber from the pipe A. Where the pipe A is open at the top only the cabinet or chamber B is necessary; but where the top of the pipe is closed a second cabinet or chamber, B', which is like the one previously described, should be connected by a pipe, C', with the pipe A near the top of the building and upper end of said pipe.

By my invention I provide a very cheap and effective method of disinfecting soil and waste pipes, and thereby prevent injury to health and the diseases which result from the inhalation of foul gases emanating from such pipes.

I am aware that a box or chamber has been arranged over the trap of a sewer-pipe and pro-

vided with a series of trays for holding suitable disinfecting material, and over which air is drawn by the exhaust action of a ventilator at the upper end of the drain-pipe leading to the sewer; but such arrangement is not my invention and is not claimed.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, with a soil or waste pipe, of a cabinet or chamber having internal horizontal shelves or pans adapted to contain disinfecting substance, and having an air-inlet and an inwardly-opening valve at the bottom, and a pipe connecting the upper part of said cabinet or chamber with said soil or waste pipe, substantially as and for the purpose specified.

2. The combination of the pipe A, the cabinet or chamber B, constructed with shelves or pans D D', the overflow-pipes *a a'*, the inlet-valve *c* and the outlet valve or valves *e*, and the pipe C, connecting said cabinet or chamber with the pipe A, substantially as specified.

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Witnesses:

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