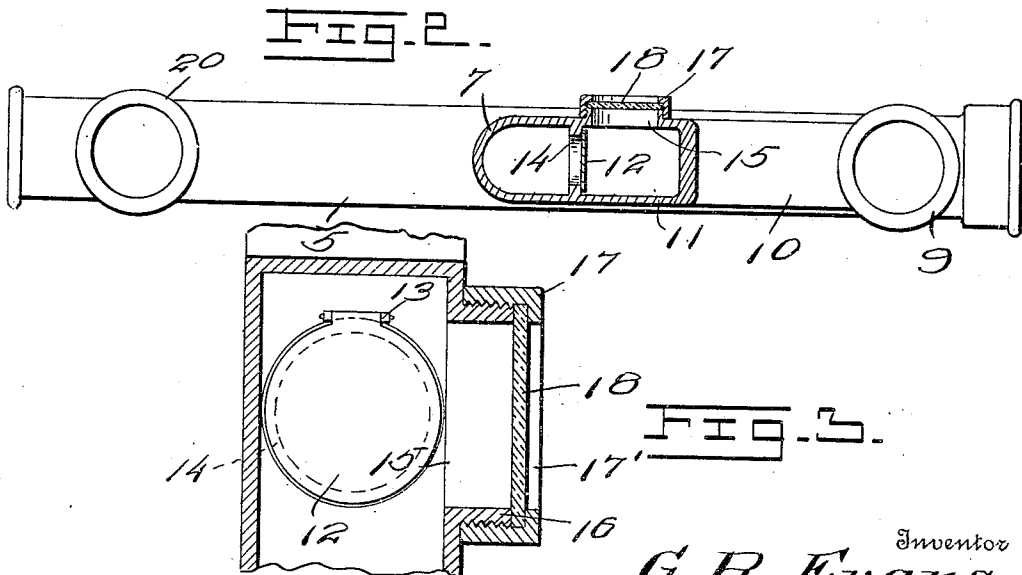
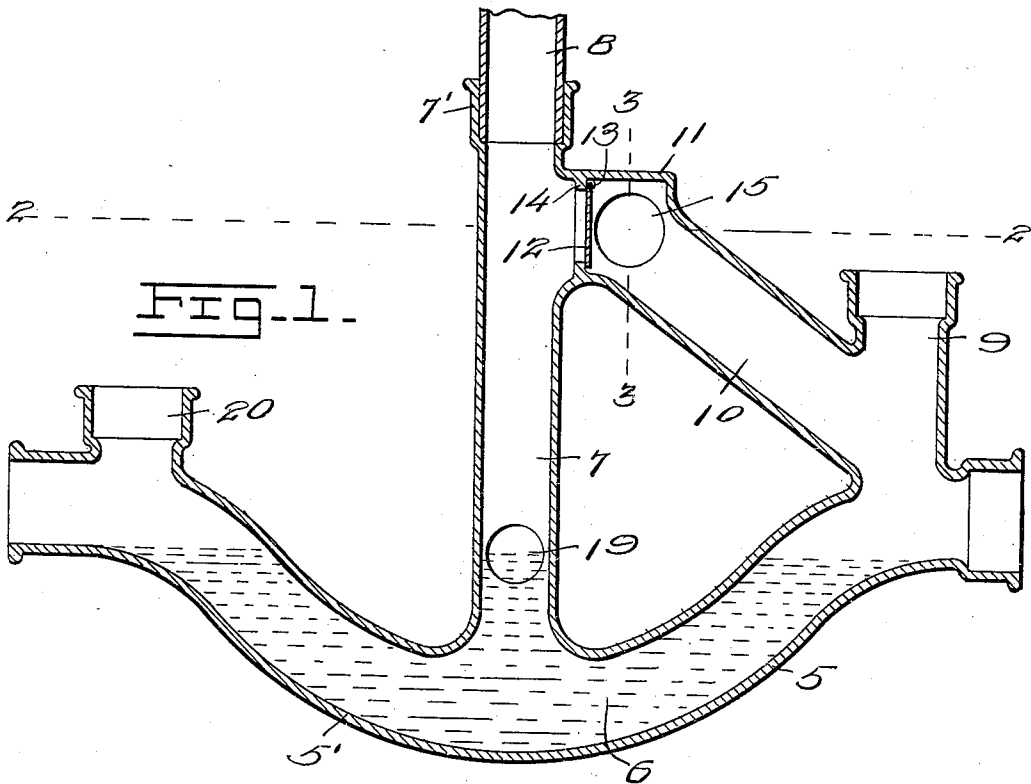


G. R. EVANS.
FRESH AIR INLET TRAP.
APPLICATION FILED SEPT. 28, 1909.

961,343.

Patented June 14, 1910.



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UNITED STATES PATENT OFFICE.

GEORGE R. EVANS, OF BERKELEY, CALIFORNIA.

FRESH-AIR-INLET TRAP.

961,343.

Specification of Letters Patent. Patented June 14, 1910.

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To all whom it may concern:

Be it known that I, GEORGE R. EVANS, a citizen of the United States, residing at Berkeley, in the county of Alameda and State of California, have invented certain new and useful Improvements in Fresh-Air-Inlet Traps, of which the following is a specification.

This invention has relation to certain new and useful improvements in fresh air inlets for sanitary ventilation in which an automatic valve is employed for the purpose of ventilating the entire sanitary system of a building.

The primary object of my invention is to provide a device of this character, located at the intersecting trap of the system, whereby the back pressure of obnoxious gases which are emitted through the system when the same is flushed, are prevented from escaping through the fresh air inlet pipe to the street.

Another object is to provide a fresh air inlet for ventilating plumbing systems, wherein the valve is adapted to automatically open and close to admit the fresh air currents and to exclude the foul air from the inlet.

A further object is to provide a simply constructed device of this character, in which the valve is disposed to one side of the inlet pipe, said pipe being connected with the intersecting debris trap, whereby sticks or other sediment which may accidentally have found entrance to the inlet will be deposited in the water seal of the trap, and thus prevent the clogging of the inlet valve.

With these and other objects in view, the present invention consists in the combination and arrangement of parts as will be hereinafter more fully described and particularly pointed out in the appended claims, it being understood that changes in the specific structure shown and described may be made within the scope of the claims without departing from the spirit of the invention.

In the drawings forming a part of this specification, and in which like numerals of reference indicate similar parts in the several views, Figure 1 is a vertical longitudinal section through the inlet and debris trap. Fig. 2 is a horizontal section taken on the line 2—2 of Fig. 1. Fig. 3 is an en-

larged detail section taken on the line 3—3 of Fig. 1.

In modern plumbing for house ventilating systems employing intercommunicating waste and vent pipes, venting above the building, and where the fresh air inlet pipe is located adjacent to the street surface, usually at the curb line, the objection exists that during the discharge through the system and the draft produced by the falling of water through the waste and soil pipe, causes the emission into the street through the fresh air inlet pipes of foul air and obnoxious gases which prove exceedingly disagreeable and deleterious to the health of pedestrians who may pass in the immediate vicinity thereof.

It is the purpose of my invention to obviate this very undesirable feature in the present system of sanitary plumbing, by the provision of a fresh air inlet having a valve located out of alinement therewith, whereby the fresh air may have an uninterrupted passage through the discharge pipes, but the egress therefrom of the foul air and gases through the inlet will be positively prevented. To this end I provide the trap 5 which is suitably connected with the discharge pipes of the drainage system. As shown in the drawing at 5' the body portion of the trap is downwardly curved to form a water seal 6. Communicating with the body portion of the trap at the center thereof, and preferably formed integral therewith there is a communicating pipe 7, the upper end of which is circumferentially enlarged as at 7' to receive the lower end of the fresh air inlet pipe 8. This pipe may be suitably calked or otherwise secured in the end of the pipe 7.

At one end of the curved body portion 5' of the trap, a comparatively short vertical extension 9 is formed, which provides a convenient cleanout opening for the trap, the upper ends of which are formed in a similar manner to the end 7' of the pipe 7. The closure plate may be suitably secured therein. An inclined communicating pipe 10 is integrally formed with the extension 9 and the pipe 7, and at its upper end immediately below the inlet pipe is provided with a rectangular housing 11, in which the valve plate 12 is pivotally mounted. This valve plate is preferably formed of mica and is pivoted as shown at 13 to the under side of the top of the housing 11. A shoulder 14

extends inwardly upon one side of the valve plate and limits the pivotal movement of said plate in the direction of the inlet 8. An opening 15 is provided in one side of the housing 11 and a circumscribing flange 16 projects outwardly therefrom. This flange is exteriorly threaded and a screw threaded cap 17 is engaged thereon and secures a glass plate 18 between the cap and the end of the flange 16. The cap 17 has a central opening 17' formed therethrough, of slightly less diameter than the glass 18, whereby the valve may be inspected and at all times kept in an operative condition.

A cleanout opening 19 is formed in the pipe 7 immediately above the central portion of the trap, and is covered by a metallic cap which may be readily removed for the purpose of removing the sediment which may have entered through the inlet or have been carried into the water seal through the discharge pipe. A cleanout 20 is also provided upon the end of the trap opposite to the cleanout 9 and is closed in a similar manner.

In the operation of the device, the fresh air enters the system through the pipe 8, the upper open end of which is located adjacent to the street surface, and forces the pivoted valve plate 12 outwardly from its seat, the air currents flowing through the communicating passage 10 into the extension 9 and hence through the discharge pipe into the house or building. The vent pipe which communicates with the discharge pipe and usually extends several stories above the point of connection therewith and in some instances above the top of the building, is adapted to carry off the foul air, but when the system is flushed, or water descends through the waste and soil pipe, the draft created prevents the outflow of the gases which are carried past the vent, and into the fresh air inlet from whence they are exuded into the street and thus endanger the health of passers by and residents in the immediate vicinity. With my improved inlet however the entrance of the gases into the inlet pipe is absolutely prevented by the valve plate 12, which is firmly seated against the shoulder 14, by the pressure of the gases in the passage 10. As the valve plate or disk is formed of mica or other resilient material, the greater the pressure of the gases against the plate, the more firmly will it be engaged with the shoulder. This valve plate may be inserted through the opening 15, and readily secured in position. The provision of the inspection opening in the side of the housing allows of a distinct view of the valve at all times, and ready access thereto should it require repairing or adjustment. The cleanout openings will also permit the thorough cleaning of the trap and the intercommunicating pipes.

From the foregoing it will be seen that I

have provided a fresh air inlet, located at the trap of the drainage system, and adapted to operate in conjunction therewith to allow a copious admission of fresh air into the system and prevent the emission of the foul air from the inlet.

The device is extremely simple in construction, may be inexpensively manufactured, and is highly efficient and durable for the purpose in view.

What is claimed is:

1. In a fresh air inlet, the combination with a drain trap having a water seal therein, of pipes extending vertically from the trap, an inlet pipe secured in the upper end of one of the vertical pipes, a communicating pipe between the vertical pipes, and a valve pivotally mounted in the communicating pipe out of alinement with the inlet pipe, said valve being outwardly movable upon the entrance of fresh air currents there-through.

2. In a fresh air inlet, the combination with a drain pipe, a trap located in said drain pipe, said trap being downwardly curved below the drain pipe to provide a water seal, a vertical pipe communicating with the trap at the center thereof, a vertical extension formed on one end of the trap, a cleanout at the upper end of said extension, a communicating pipe between the vertical pipe and the extension, an inlet pipe secured in the upper open end of the vertical pipe above the communicating pipe, said inlet pipe extending to the street surface, a pivoted valve plate located in the communicating pipe adjacent to the inlet pipe, a shoulder adapted to provide a seat for the valve plate, said plate being outwardly movable upon the entrance of fresh air through the inlet and adapted to be engaged with its seat to prevent the admission of foul air to the inlet pipe from the drain pipe, the communicating pipe having an observation opening adjacent to the valve.

3. In a fresh air inlet, the combination with a drain pipe having a trap located therein, said trap being downwardly curved out of longitudinal alinement with the drain pipe, cleanouts communicating with the opposite ends of the trap, a vertically disposed pipe communicating with the center of the trap, an inlet pipe secured in the upper end of the vertical pipe and opening adjacent to the street surface, a cleanout opening provided in the vertical pipe adjacent to the trap, a communicating pipe between the upper end of the vertical pipe and one end of the trap, an interior shoulder provided in the communicating pipe adjacent to the vertical pipe, a valve plate pivoted within the communicating pipe and normally seated against the shoulder, said valve plate being outwardly movable therefrom upon the entrance of fresh air through the inlet pipe

and adapted to be seated upon the flow of foul air through the drain pipe, the communicating pipe having an observation opening adjacent to the valve plate.

- 5 4. In a fresh air inlet, the combination with a drain pipe having a trap located therein, cleanouts communicating with the trap at each end thereof, a vertically disposed pipe communicating with the center
10 of the trap, a communicating pipe between the upper end of the vertical pipe and one of the cleanouts, said trap and pipes being integrally formed, a cleanout opening provided in the lower end of the pipe, a fresh
15 air inlet pipe secured in the upper end of the vertical pipe, a rectangular housing formed on the communicating pipe adjacent

to the inlet pipe and having a shoulder formed therein, an elastic valve plate pivotally mounted in the housing and normally 20 seated against said shoulder, said valve plate being movable outwardly for the admission of the air currents to the communicating pipe, said housing having an observation opening therein adjacent to the valve plate, 25 a glass cover for said opening, and a cap adapted to retain said cover in position.

In testimony whereof I affix my signature, in presence of two witnesses.

GEORGE R. EVANS.

Witnesses:

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GEO. L. BRUNS.