

(No Model.)

J. HADFIELD & F. McCONNELL.

SOIL PIPE VENTILATOR.

No. 385,262.

Patented June 26, 1888.

Fig. 2.

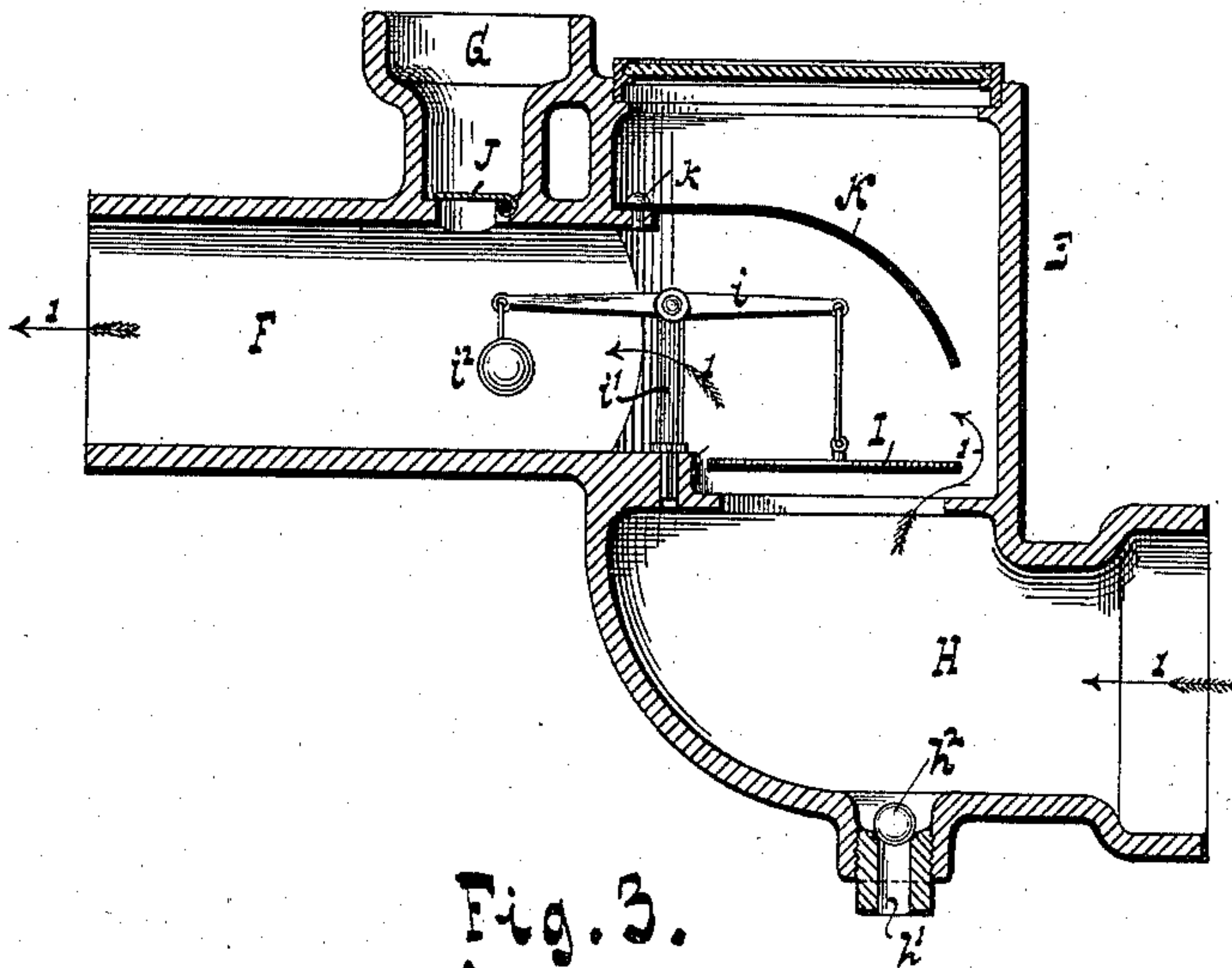


Fig. 3.

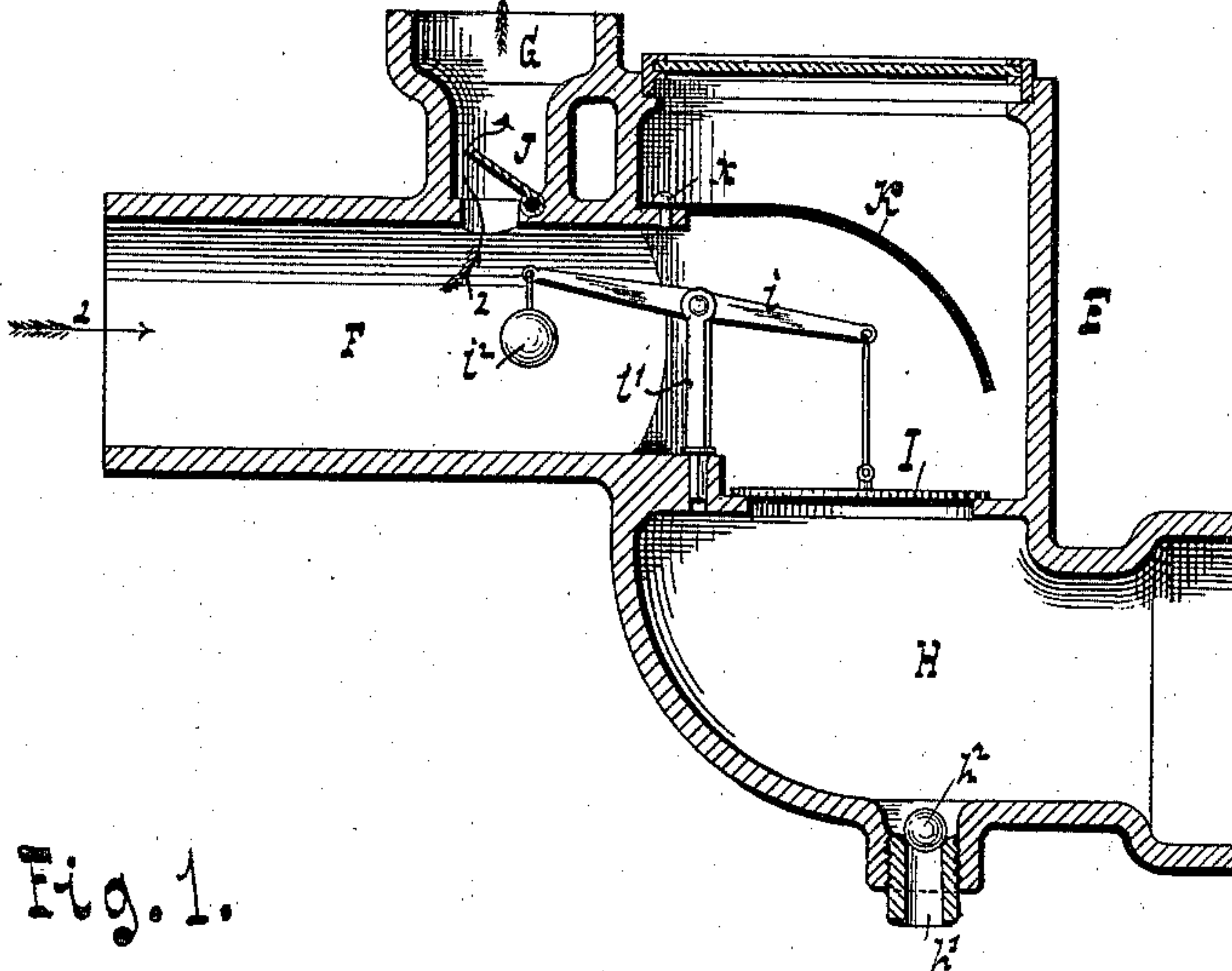
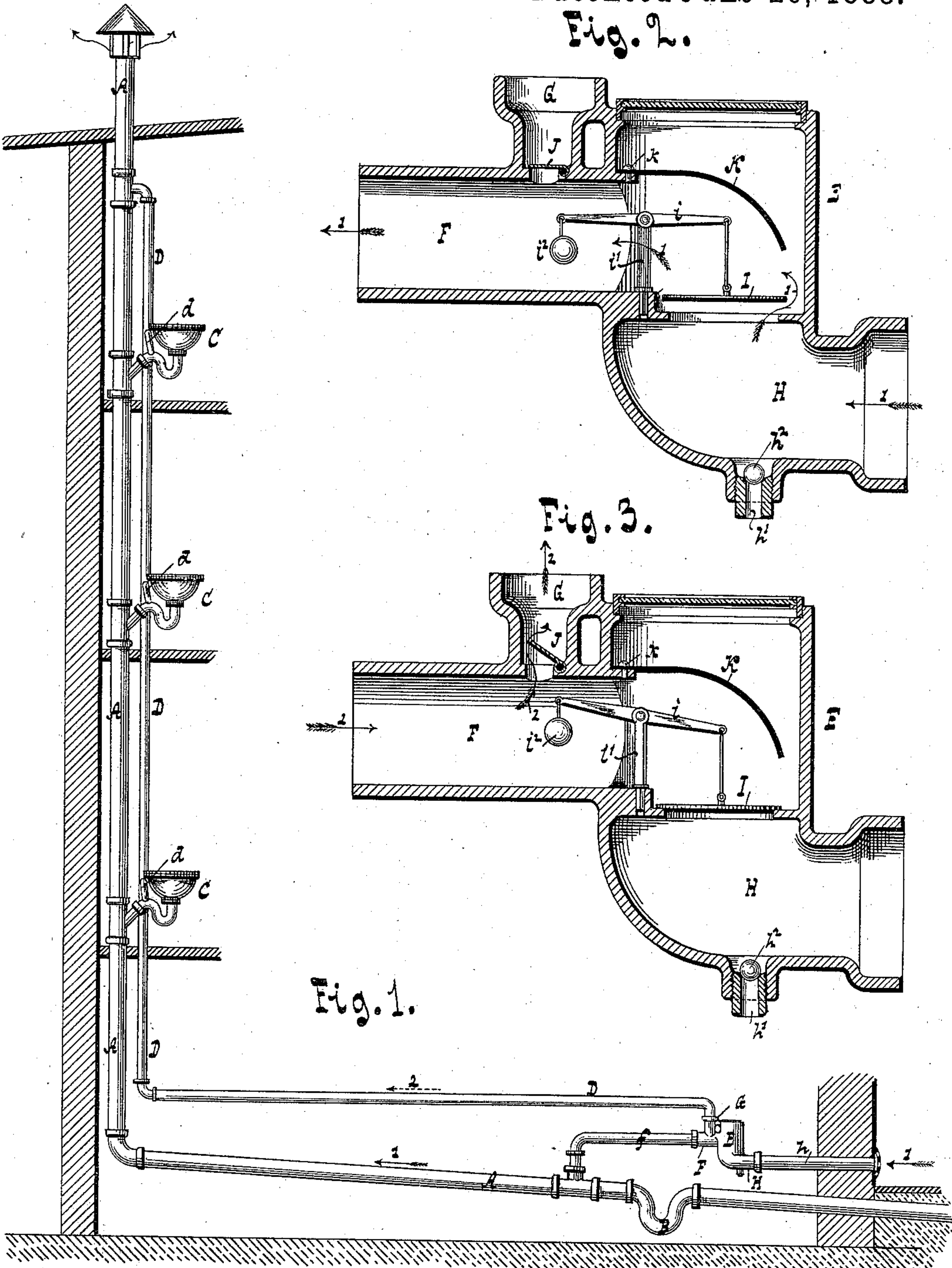


Fig. 1.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

JOSEPH HADFIELD, OF NEW YORK, AND FLORENCE McCONNELL, OF  
BROOKLYN, NEW YORK.

## SOIL-PIPE VENTILATOR.

SPECIFICATION forming part of Letters Patent No. 385,262, dated June 26, 1888.

Application filed January 12, 1888. Serial No. 260,519. (No model.)

*To all whom it may concern:*

Be it known that we, JOSEPH HADFIELD and FLORENCE McCONNELL, both citizens of the United States, residing at New York, in the county and State of New York, and at Brooklyn, in the county of Kings and State of New York, respectively, have invented new and useful Improvements in Soil-Pipe Ventilators, of which the following is a specification.

Our invention relates to improvements in soil-pipe ventilators of that type in which fresh air is admitted to the soil-pipe at the level of the ground.

The object of our improvement is to prevent the escape of the foul air or gas in the soil-pipe through the fresh-air inlet of the ventilator when the pan of a water-closet is dumped or whenever a large quantity of water suddenly enters the soil-pipe.

To this end our invention consists in the combination, with a soil-pipe open at its top end, of a back air-pipe communicating with the latter at or near its upper extremity, a valve-casing containing an air-inlet and passages F and G, communicating, respectively, with the soil and back air pipes, and a valve controlling the fresh-air inlet, all of which is more fully pointed out in the following specification and claims and illustrated in the accompanying drawings, in which—

Figure 1 is a sectional elevation illustrating the application of our improved soil-pipe ventilator. Fig. 2 is a longitudinal section, on a larger scale than the preceding figure, of the ventilator detached. Fig. 3 is a similar section showing the valves in a different position.

Similar letters indicate corresponding parts.

In the drawings, referring at present to Fig. 1, the letter A designates the soil-pipe, the vertical portion of which is led above the roof of the building. Its horizontal portion is connected with the sewer, (not shown,) and is provided with the usual trap, B. The various closets, C, basins, &c., arranged on the several floors, are connected with the soil-pipe in the usual manner.

D is a back air-pipe, which is connected by pipes *d* with the upper portions of the traps

of the various closets or basins. Its upper end is connected with the soil-pipe A at a point above the highest closet or basin. The valve-casing E is located above the soil-pipe, and is provided with a passage, F, which is placed in communication with the soil-pipe by the use of a pipe, *f*. A second passage, G, is placed in communication with the back air-pipe D, and said passage G is also in communication with the passage F.

The fresh-air inlet H is placed in communication with the outer air by means of a pipe, *h*. As seen in Fig. 1, the fresh-air inlet H is closed by a valve, I, which opens inwardly and permits the fresh air to enter the casing E and pass through the passage F and pipe *f* into the soil-pipe, as indicated by the arrow 1.

If the contents of a water-closet pan or one of the several floors of the building is dumped into the soil-pipe, the mass falling through the vertical portion of the same drives the air or gas toward the sewer, and as the air or gas cannot readily make its escape to the sewer on account of the trap B, it enters the valve-casing through passage F, Fig. 2. The pressure of the air or gas on the valve I closes the same, and the escape of the air or gas is cut off in this direction. The air or gas can, however, make its escape through the passage G, connected with the back air-pipe D, as indicated by arrow 2, Fig. 2, and consequently it is led above the roof of the building.

To render the valve I very sensitive and reliable, it is suspended from a beam, *i*, having a pivot on a post, *i'*, and an attached weight, *i''*, which counterbalances, or nearly so, the weight of the valve. The valve can, however, be balanced in any other suitable way.

To prevent any possibility of the foul air or gas entering the valve-casing through the back air-pipe, an outwardly-opening valve, J—such as a flap-valve—can be placed in the branch G. The top of the casing may be closed by a glass cover, so that the action of the valve I can be observed. A deflector, K, is provided to deflect the air entering the passage H toward the passage F.

It will be noticed that by the arrangement of devices herein described the foul gases are



all discharged above the roof of the building, the advantage of which is evident.

The deflector K is made removably secured in the valve-casing—as, for instance, by a screw, 5 K—so that the valve I can be inserted in its position from the top of the casing, and that the diaphragm can be removed from time to time when it is desired to inspect the valve. In such cases, where the fresh-air pipe *h*, Fig. 10 1, is led upward, we provide an opening, *h'*, Figs. 2 and 3, in the lower part of the valve-casing, which is closed by a ball-valve, *h*<sup>2</sup>, so that if water accumulates in said casing from any cause it will open the valve and flow out 15 of said opening.

What we claim as new, and desire to secure by Letters Patent, is—

1. The combination, with a soil-pipe having its upper open end extended above the building, of a back air-pipe communicating with 20 the soil-pipe above the highest closet or basin, and a valve-casing having a valved air-inlet and provided with a passage, F, communicating with the soil-pipe, and a passage, G, communicating with the lower end of the back air- 25 pipe, substantially as described.

2. The combination, with a soil-pipe having its upper open end extended above the building, of a back air-pipe communicating with 30 the soil-pipe above the highest closet or basin, and a valve-casing having a valved air-inlet and provided with a passage, F, communicating with the soil-pipe, and a valved passage, G, communicating with the lower end of the back 35 air-pipe, substantially as described.

3. The combination, with a soil-pipe and a back air-pipe, of a valve-casing having an air-inlet and passages F and G, communicating, respectively, with the soil-pipe and back air- 40 pipe, an inwardly-opening valve controlling the air-inlet, and an outwardly-opening valve in the passage that leads to the back air-pipe, substantially as described.

4. The combination, with the soil-pipe A and back air-pipe D, of the casing E, having an air- 45 inlet, H, and provided with passages F and G, communicating, respectively, with the soil-pipe and back air-pipe, an inwardly-opening balanced valve, I, controlling the air-inlet, and an outwardly opening valve, J, in the passage 50 that leads to the back air-pipe, substantially as described.

5. The combination, with the soil-pipe A and back air-pipe D, of the casing E, having an air- 55 inlet, H, and provided with passages F and G, communicating, respectively, with the soil-pipe and back air-pipe, a valve, I, controlling the air-inlet, a deflector, K, located above said valve, and a valve, J, in the passage that leads 60 to the back air-pipe, substantially as described.

In testimony whereof we have hereunto set our hands and seals in the presence of two subscribing witnesses.

JOSEPH HADFIELD. [L. S.]  
FLORENCE McCONNELL. [L. S.]

Witnesses:

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E. F. KASTENHUBER.