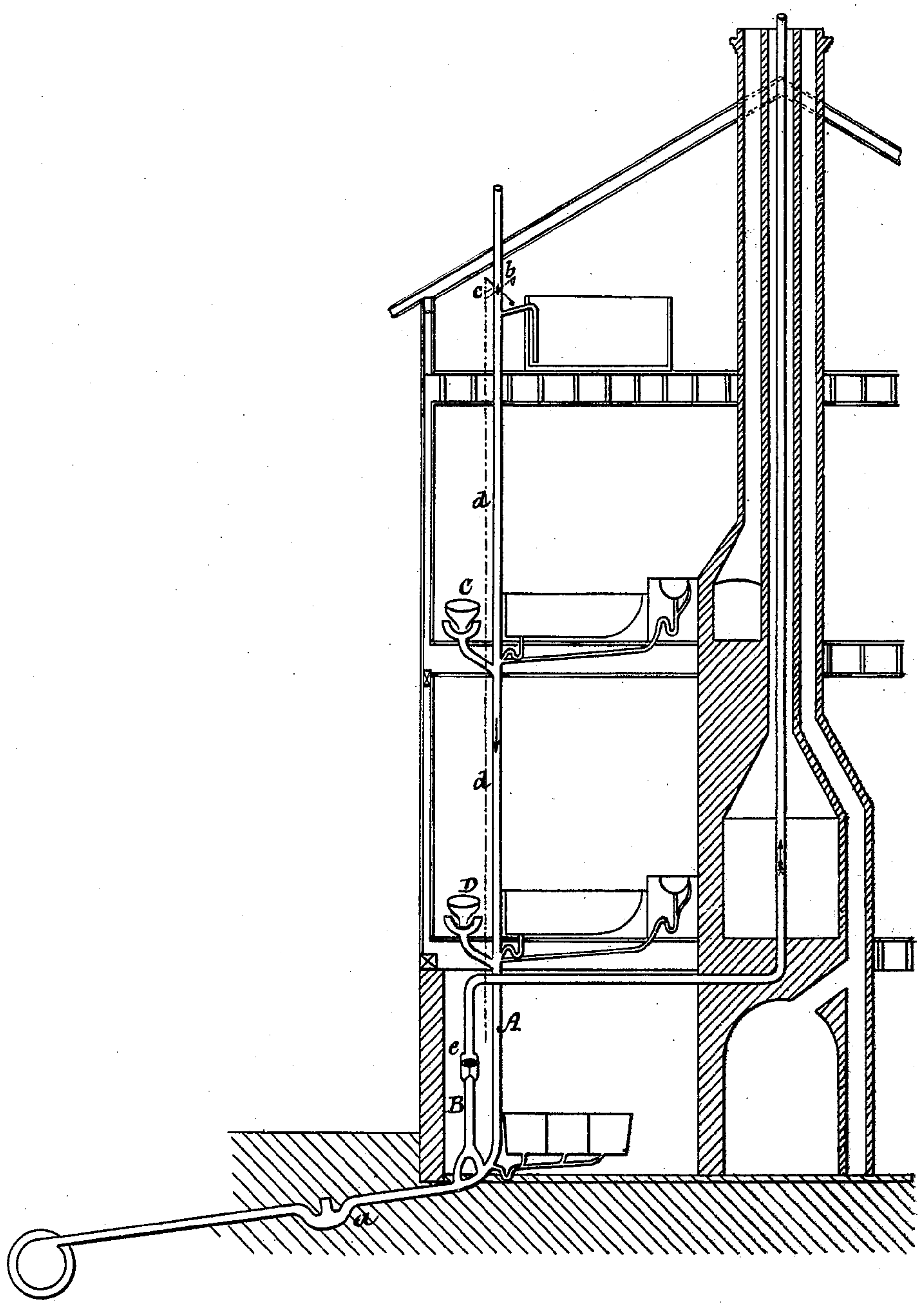
W. H. FLUDDER.

HOUSE VENTILATION.

No. 180,019. Patented July 18, 1876.



Witnesses:

Ewell A. Dick

Jos. C. Waldman

Inventor:

Wm. H. Fludder

by atty. Pollok & Bailey

2 Sheets—Sheet 2.

W. H. FLUDDER.

HOUSE VENTILATION.

No. 180,019. Patented July 18, 1876.

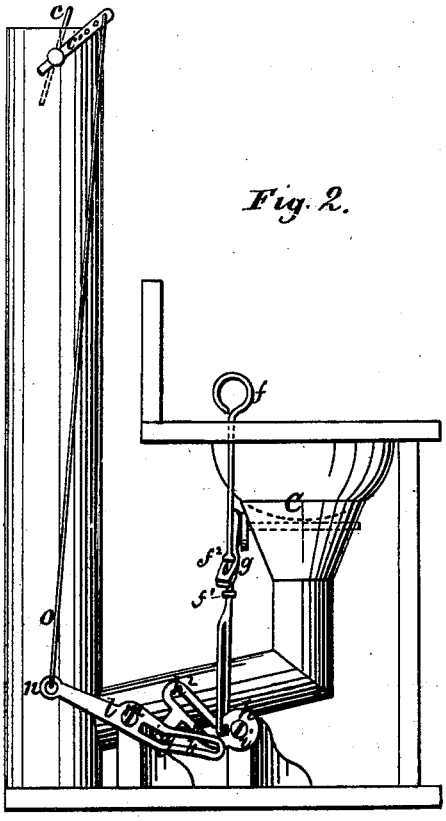


Fig. 2.

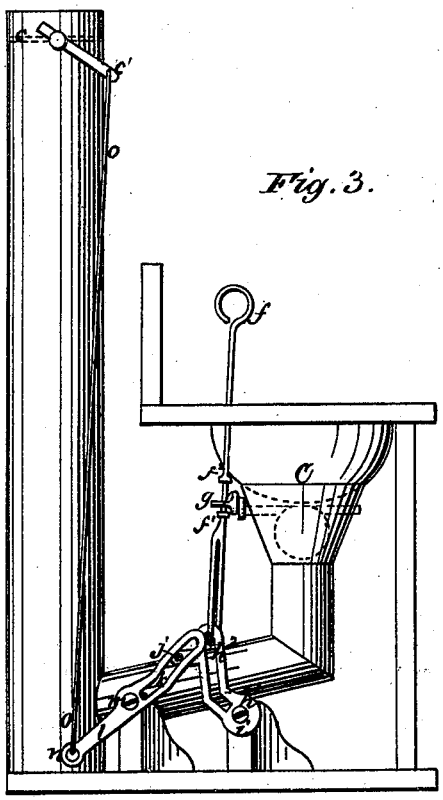


Fig. 3.

Witnesses

Ewell A. Dick,

S. P. Hollingsworth.

Inventor:

Wm. H. Fludder

by attys Burks & Bailey

UNITED STATES PATENT OFFICE.

WILLIAM H. FLUDDER, OF NEWPORT, RHODE ISLAND.

IMPROVEMENT IN HOUSE-VENTILATION.

Specification forming part of Letters Patent No. **180,019**, dated July 18, 1876; application filed April 11, 1876.

To all whom it may concern:

Be it known that I, WILLIAM H. FLUDDER, of Newport, Rhode Island, have invented a new and Improved System of Soil-Pipe, Water-Closet, and other Waste-Pipe Ventilation for Dwellings, Houses, and other Buildings, of which the following is a specification:

Sheet 1 of the accompanying drawings is a diagram representing a portion of a dwelling-house in which the general arrangement of my improved system is shown.

The object of my invention is to create and apply a downward current of air in and through the length of soil-pipes, water-closet or other waste-pipes of dwellings, houses, and other buildings, by means either of a ventilating-flue, to be constructed in connection with the kitchen or other flue or chimney in which there is heat at all seasons, or to be provided with other suitable means of inducing a permanent draft in one direction—and that downward with the flow—as, for instance, by the use of a fire or flame, or steam, either inside or outside the flue or shaft, a ventilating-cowl on the ventilating flue or shaft, or of other mechanical appliances by which air may be displaced at or near the bottom of the soil-pipe or other waste-pipes, and to supply external air for this current by extending the soil-pipe upward and through the roof to the external air. In order to secure a continuous movement of air down the inside of the soil-pipe A or other waste-pipe, I seal the lower end of the soil or other waste pipe, as shown at *a* in the drawing, or by the usual method of interposing a water or other trap, or its equivalent, in its course outside the building, to avoid faulty joints in the pipe leading to the sewer; and near that, or at such other point as I may determine, I branch out for my ventilating flue or shaft B, which, in this instance, is carried up through the length of the chimney. By thus providing for the heating of the ventilating-flue a continuous air-current down the soil-pipe and up the flue is induced. Near the upper end of the soil-pipe, at the point marked *b*, or at any point most convenient to accomplish my purpose, I introduce a damper or valve, *c*, or its equivalent, which ordinarily stands open, as shown by the black lines, but, when operated by the handle or lever of the water-closet C or D, or its equivalent, and just before the water-pan, or its equivalent, under the closet C or D unseals itself, is closed by the connecting-rod, wire, or its equivalent, *d*, connected on the one part to the handle or lever, and on the other part to the damper. Then the air-supply of the ventilating shaft or flue can be furnished only by a downward current through the closets C or D. By this application of a downward current of air at all times through the soil-pipe, and through closets when the latter are used, I am enabled to do away with the usual D or other permanent water-trap under the closets, and to give a direct cleansing flow for the contents of the closets at each use.

In Sheet 2 of the drawings I have represented in detail one way of connecting the water-closet levers with the damper.

Figure 2 is a view of the closet with the pan closed and the damper open. Fig. 3 is a like view with the pan open and the damper closed.

f is the handle, which operates, through the medium of the lever *g*, the pan of the closet C. The stem of the handle is prolonged below its point of connection with the pan-lever, and terminates in a loop, which is held in a cam or irregular slot, h^1 h^2, formed in the lever-arm *h*. The latter arm is pivoted at *i* to a suitable support, and is provided near its outer end with a laterally-projecting pin, *j*, which enters a slot, *k*, formed in the lever *l*. This last-named lever is pivoted at *m* to a proper support, and at *n* is connected by a wire, *o*, or other suitable intermediary, to the crank or lever *c'* of the damper *c*. The loop end of the handle *f* traverses the irregular slot h^1 h^2. In traversing the part h^1 it operates the damper; then, traversing h^2, it operates the pan. For this purpose it is connected with the pan-lever *g* by passing loosely through that lever, shoulders f^1 f^2 being formed on said handle, one on each side of the lever, and at a proper distance apart to afford the needed play.

The operation is as follows: The parts being in the position shown in Fig. 2, with the damper open and the pan closed, on raising the handle its looped end first traverses the part h^1 of the slot, which has the effect of lifting the lever *h*, and consequently operating

the lever *l* to close down the damper; then the looped end traverses the part h^2 of the slot, which it can do without further moving the damper. But by this further raising of the handle the lower stop f^1 is brought in contact with and serves to raise the pan-lever *g*, which has the effect of dropping the pan. Thus, in raising the handle, the damper is first closed, and then the pan is opened. In depressing the handle the reverse is the case. The looped end traverses the part h^2 of the slot without affecting the damper. The upper stop f^2, however, if the lever *g* does not drop of its own weight, will depress the lever, and so in any event close the pan. Then the looped end enters the part h^1 of the slot, bears on and depresses the lever-arm *h*, and consequently opens the damper. As many wires as there are closets can be connected with the damper-lever *c'*, each having its own connection therewith. Inasmuch as the wires or cords *o* are flexible, any one may operate the damper, the only effect of the closing of the damper by one being that the other connecting cords or wires will be slack.

In all closets, except where a water seal or pan is used, there is generally enough false motion of the lever and handle to work the damper-cranks in time; but with the water seal or pan some mechanical device for obtaining this motion is needed. Such a device is shown in the drawing in the loose connection of the handle with the pan-lever.

By the application of my system, the possibility of a pressure of sewer-air from within the soil-pipe forcing the traps and impregnating the water in waste-pipes and water-closets, bath and wash bowls, now so generally the case, is obviated, and the foul air carried off harmless to the outer air. I also secure at all times such a downward circulation or current of pure air through the soil-pipe and closets as will prevent the formation of any poisonous gases within the soil or waste pipes, and effectually dilute any gases received from drain or cess-pool before it ascends the ventilating shaft or flue. At the point *e*, or at such other point most convenient, I introduce a chamber in the ventilating pipe or flue, having a glass at one side for inspection, and insert in this chamber, if I wish, a wind-well, or its equivalent, which will indicate the movement of the column of air.

The above system of ventilation, with some modifications, is applicable to sewer-ventilation.

What I claim, and desire to secure by Letters Patent, is as follows:

1. The method of ventilating the soil or waste pipe or pipes of dwellings and other houses or buildings, by the use of a ventilating flue or shaft, arranged or provided with means to produce an upward movement of the air therein, communicating with the soil-pipe or other waste-pipe at or near the bottom of the same, and operating to induce a permanent current of air downward through the length of the said pipe, and thence upward through said ventilating-shaft, substantially as set forth.

2. The combination of the soil-pipe, the ventilating-shaft, and the damper in the soil-pipe, connected with and operated by the water-closet levers, or their equivalents, at the times and in the manner substantially as set forth.

3. The combination, with the soil-pipe or other waste-pipe and the ventilating-shaft, arranged and operating to induce a permanent downward air-current in the said pipe, as described, of water-closets without permanently-sealed water-traps, substantially as set forth.

In testimony whereof I have hereunto signed my name this 25th day of March, A. D. 1876.

WM. H. FLUDDER.

Witnesses:

B. H. SEABURY,

JAMES FLUDDER.