

(No Model.)

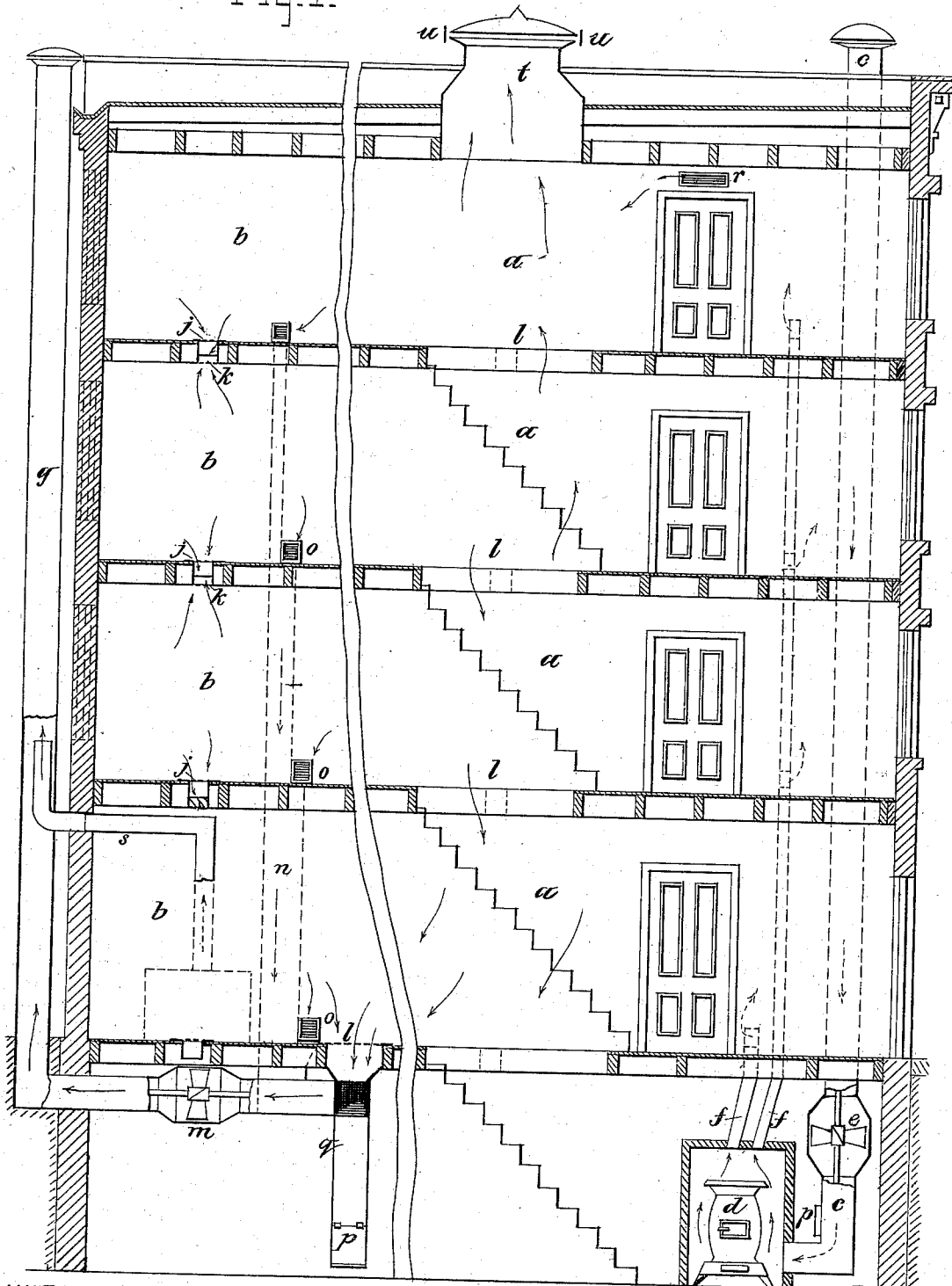
W. A. PITT.
VENTILATION.

3 Sheets—Sheet 1.

No. 268,822.

Patented Dec. 12, 1882.

Fig. 1.



WITNESSES=
H. Jewell
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INVENTOR=
William A. Pitt

(No Model.)

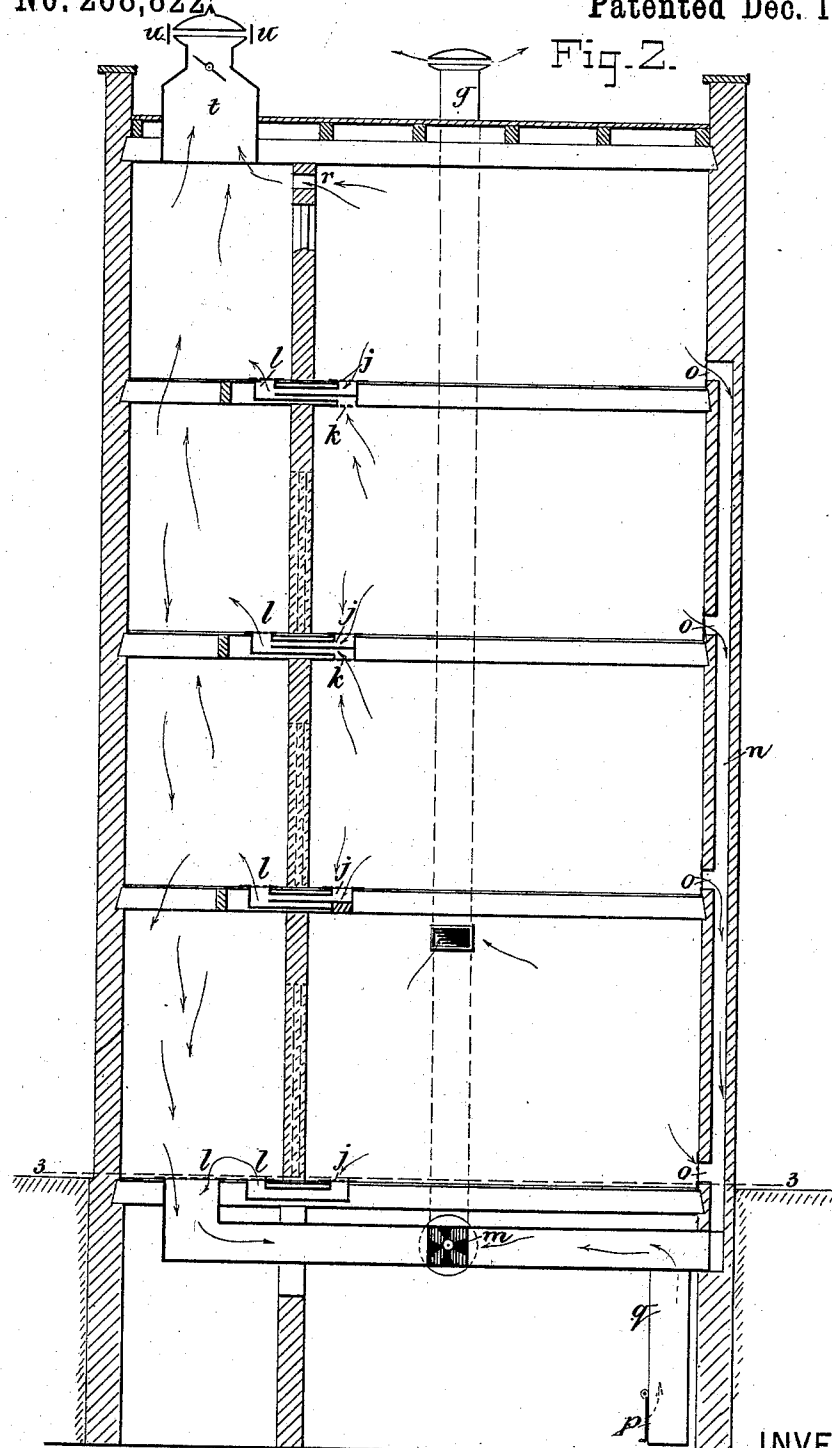
3 Sheets—Sheet 2.

W. A. PITT.

VENTILATION.

No. 268,822.

Patented Dec. 12, 1882.



WITNESSES:

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(No Model.)

3 Sheets—Sheet 3.

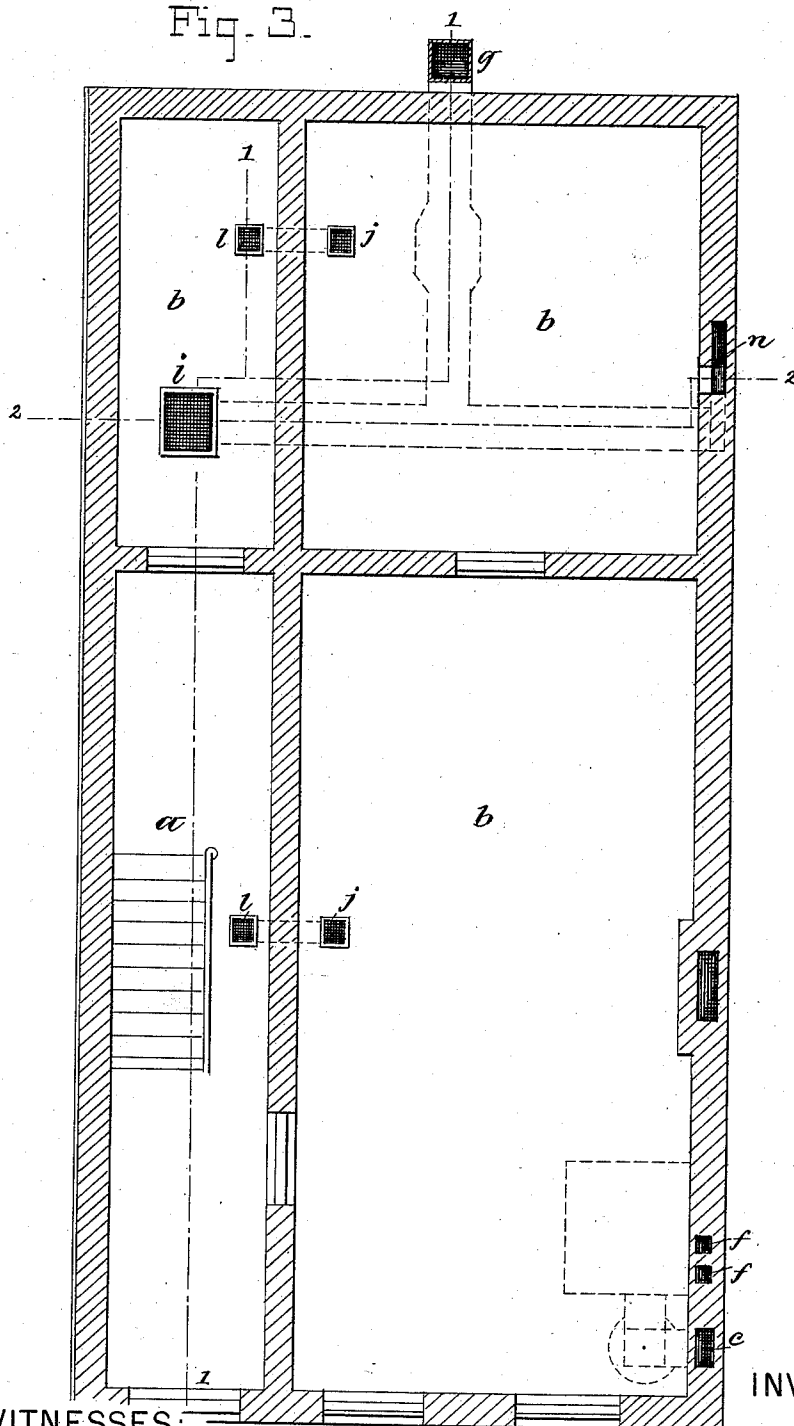
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Fig. 3.



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UNITED STATES PATENT OFFICE.

WILLIAM A. PITT, OF NEW YORK, N. Y.

VENTILATION.

SPECIFICATION forming part of Letters Patent No. 268,822, dated December 12, 1882.

Application filed July 16, 1881. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM A. PITT, a citizen of the United States, residing at New York, in the county and State of New York, have invented a new Improvement in Ventilation, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form a part of the same.

The object of my invention is to provide means for exhausting the foul air directly from each room of a building, and admitting a continuous supply of fresh air, and maintaining a perfect and thorough ventilation throughout the entire house; and this object I attain by the combination and arrangement of devices shown in the accompanying drawings, in which—

Figure 1 represents a vertical longitudinal section of a building containing my improvements. Fig. 2 is a central cross-section of the same; and Fig. 3 is a plan view taken through the line 3 3 of Fig. 2.

Like letters indicate like parts in all the views.

Referring first to Fig. 1, *a a*, &c., represent the several hallways of the house with the stairs and doors leading into the respective rooms; and *b b*, &c., the interior of the rooms. *c* is a vertical shaft, extending from the sub-cellar to and above the roof of the house, which is built preferably in the side wall thereof, and communicates directly with the heating-furnace *d*. Through this shaft fresh air from above the roof is supplied to the several parts of the building, the air being drawn down by means of a propeller, *e*, located in the lower part of the shaft, to the furnace, and from thence is conveyed to the rooms by the furnace-flues *f f*. *g* is a similar shaft, built within the rear wall or back thereof, which extends from the top of the house down and through the cellar, and communicates with the basement-floor by register-opening *i*. Into this shaft all the foul air from the several rooms and halls is collected and expelled out from the street-level. The vitiated air from the rooms can be drawn directly down into this shaft; or can be first expelled into the halls and thence on and down through register-openings into the foul-air shaft. In the latter case the connection with the rooms and halls is made as follows: In the

floor of each room, near the outer partition, an opening, *j*, is provided, and in the ceiling of each room, with the exception of the kitchen, a similar opening, *k*, is made, both openings passing between the beams and leading into the hall adjoining the room, as shown at *l l*, &c. Thus each room has two outlets into the hall—one from the floor and one from the ceiling—excepting the kitchen, which by preference has but one from the floor. The openings are all provided with registers operated in any well-known way. When the registers are opened the foul air escapes from the rooms through the openings into the hall, and from thence is drawn down through the register *i* into the foul-air shaft *g*, as clearly indicated by the arrows in Fig. 1. A powerful exhaust-draft is induced by a propeller, *m*, which is preferably located in the lower part of the shaft, and is propelled by a suitable power arranged in the cellar. When the propellers are located at the top of the shafts they may be operated by wind-power. Any construction of propeller is adapted for my present purpose, but I prefer to use my improved reversible current-propeller, for which I have already filed application for Letters Patent.

Within the side wall of the house I provide a vertical flue, *n*, which leads into the main foul-air shaft *g*. This flue is of decreasing size, being largest at the lower end where it communicates with the shaft *g* and decreasing about one-third on the next story, and so on to the upper floor. Register-openings *o o* connect each room with this flue. By this means the foul air can be drawn directly from the room into the exhaust-shaft, which in some cases may be found more desirable than permitting it to escape through the halls. The ventilation will be, however, more perfect if both exhaust-openings are used together.

Doors *p p* are provided in the vertical flue *g* and supply-shaft *c*, so that the foul air can be drawn off from the cellar into the main shaft and fresh air be admitted thereto when necessary. By opening these doors a communication can be constantly kept up with both the exhaust and supply shafts, and a perfect ventilation is insured in the cellar.

Ventilators *r r* are provided over the doors leading into the halls.

s is a pipe, which leads from over the top of

the kitchen-range into the main shaft *g*. The purpose of this pipe is two-fold—namely, to carry off from the kitchen all the surplus heat and to utilize the heated currents to create a draft in the exhaust-shaft *g*.

t is a ventilating-dome, shown arranged, as usual, above the hallway, which is provided with one or more valves, *u u*. These valves may be opened or closed, as it is found desirable, either to retain within the hall or permit the escape of heated air outside. When the several communications from the rooms to the adjoining halls are all closed and it becomes necessary to admit cooler and fresher air to the halls alone the valves *u* may be opened, when a direct current will be induced, and the heavy and vitiated air will be drawn down into the shaft *g* and expelled. A perfect circulation can thus be maintained in the halls without any connection with the rooms.

When the building is to be supplied with fresh air the propeller *e* at the bottom of shaft *c* is set in motion. A volume of cool air will be drawn down into the furnace *d*, and from thence will ascend by the flues *ff* into the several apartments of the house. By opening the registers in the floor and ceiling of each room the heated and foul air will escape through openings *j k* out into the adjoining halls, from which point it will be drawn down through the large register-opening *i* in the lower floor into the shaft *g*, and be from thence expelled either at the top, as shown in the drawings, or out at the street-level, as preferred. An additional means of escape for the foul air contained within the rooms is afforded by opening the registers *o o* in the side wall, the air then being drawn directly through the flue *n* into the shaft *g*. The exhaust of foul air and supply of fresh can be regulated at pleasure in any one part of the house, and a perfect ventilation be maintained in all the rooms or in the halls without opening the doors and independently of each other.

By my arrangement of flues any one room can be heated or cooled irrespective of all the others, as the fresh air is supplied directly into each room, and the foul air expelled therefrom through channels which are disconnected entirely from those of the other rooms. The main object in thus arranging the shaft through which the foul air is exhausted at the lowest point in the building, and at that point collecting and exhausting all the impure air of the house is, first, to prevent any possibility of the air from the basement ascending to the upper floors; and, second, to assist the naturally-descending volume of heavy

and foul air from the higher levels, in its course downward. By collecting the foul air from all parts of the house at one point, and at the lowest level, a more perfect and thorough ventilation is insured throughout the entire house.

I claim—

1. In ventilating buildings, the combination of a foul-air shaft, extending into the cellar of the house and communicating therewith by means of an opening in the floor of the lower hall, with an air-passage arranged in the floor of each hall communicating with the adjoining room and with the room below it, and with a propeller arranged within said shaft, whereby the heavy and vitiated air from the several rooms is discharged into the halls at the lowest level, and is drawn down and exhausted at the lowest point in the building, substantially as set forth.

2. In means of ventilating buildings, the combination and arrangement of an air-outlet provided in the floor of the room communicating directly with an opening in the floor of the adjoining hall, and a similar outlet provided in the ceiling of the room similarly communicating with the hall above, whereby the foul and superheated air from the top and bottom of the room may escape into the halls on the lowest level, substantially as set forth.

3. The combination of the shafts *c* and *g*, provided with the doors *p p* and register-opening *i*, with the flues *ff* and connecting-flue *n*, all arranged and operating in the manner and for the purpose set forth.

4. The combination of a fresh-air shaft and foul-air shaft, adapted to exhaust and discharge from the lowest point in the building, with a ventilating-dome provided with one or more valves, whereby a direct current can be induced from the top to the bottom of the house through the halls, substantially as described.

5. The combination of the foul-air shaft *g*, propeller *m*, register-opening *i*, and air-outlets *j k*, all arranged in the manner and for the purposes set forth.

6. In ventilating buildings, the combination of the supply and exhaust shafts *c* and *g*, propellers *e* and *m*, flues *ff*, outlets *j k*, and register-opening *i*, substantially as set forth.

7. The combination of the foul-air shaft *g*, register-opening *i*, outlets *j k*, and pipe *s*, substantially as and for the purpose described.

WILLIAM A. PITT.

Witnesses:

WILLIAM SCOTT,
A. L. MCFARLAN.