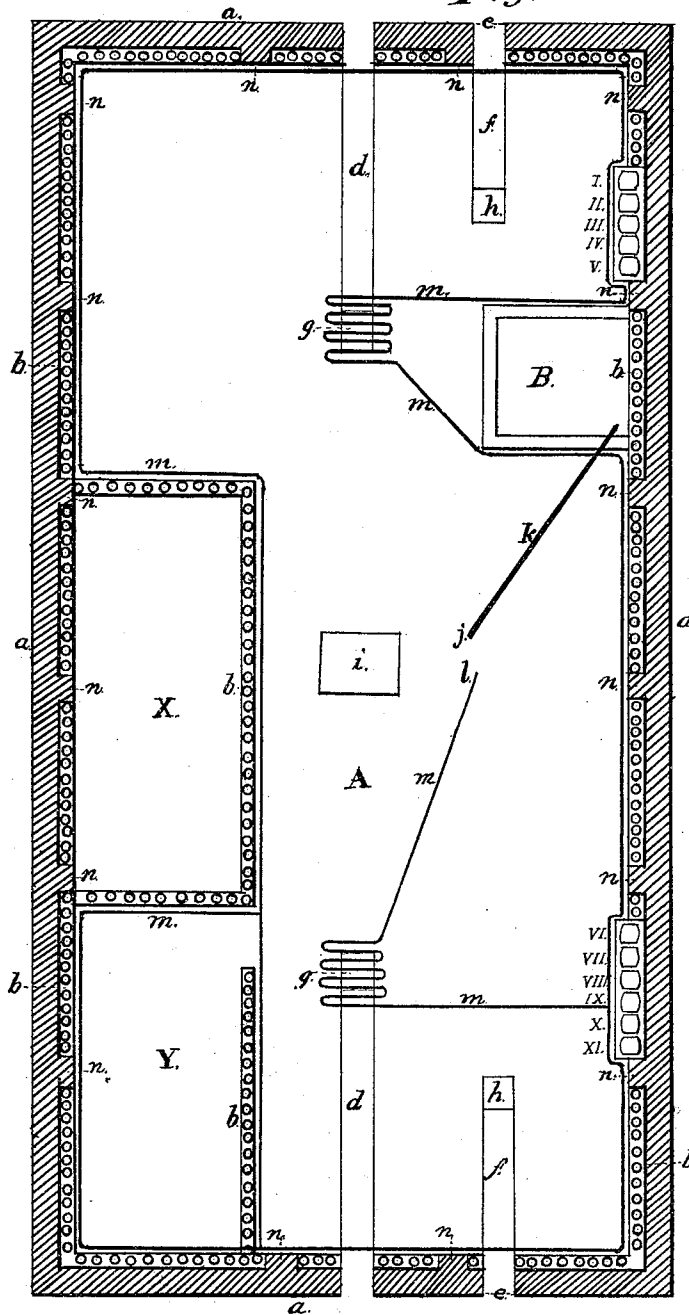


J. S. LINSLEY.

MODE OF VENTILATING, WARMING AND COOLING BUILDINGS.
No. 175,719.

Patented April 4, 1876.

Fig. 1.



Witnesses;
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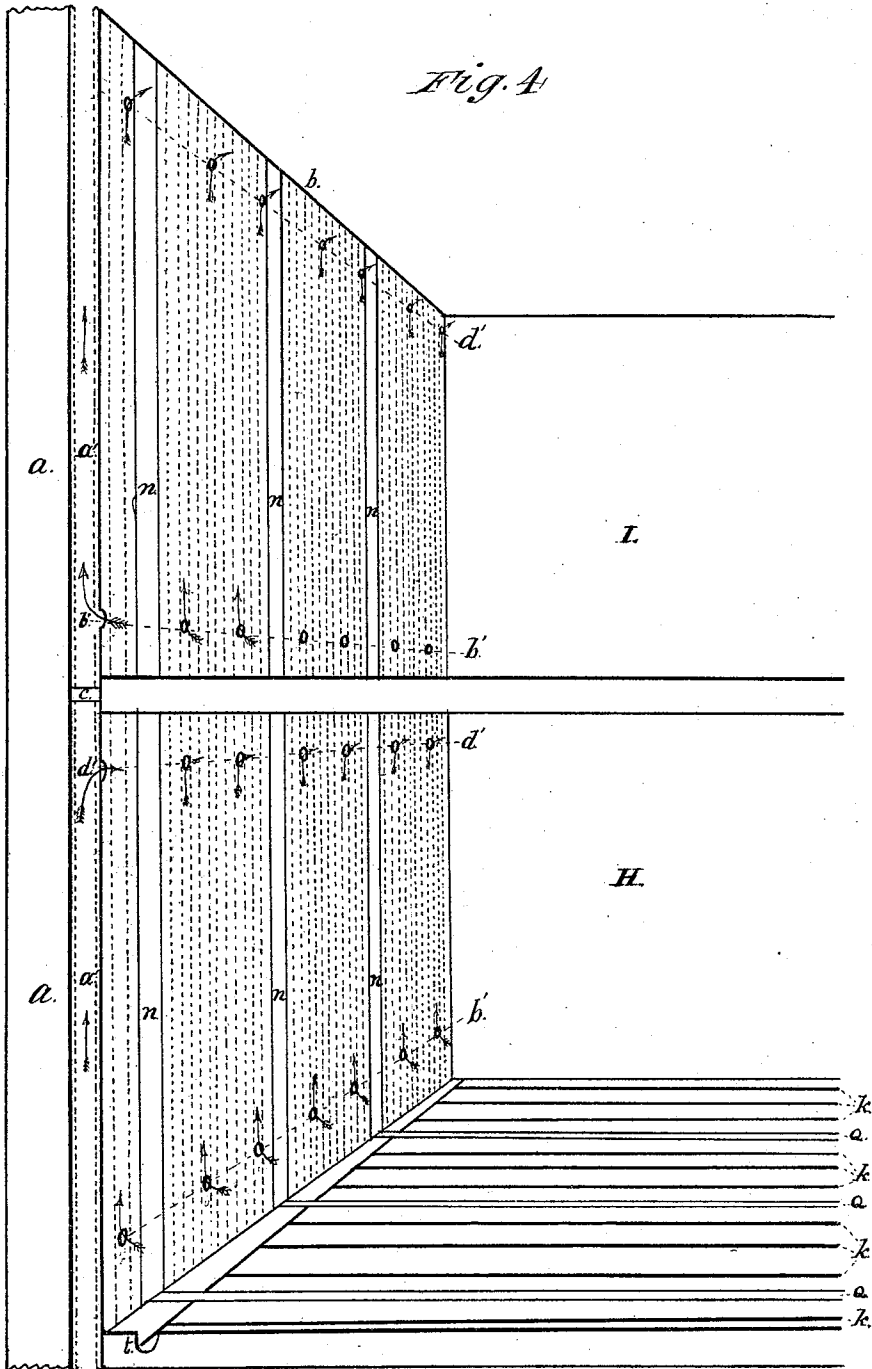
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Fig. 7.

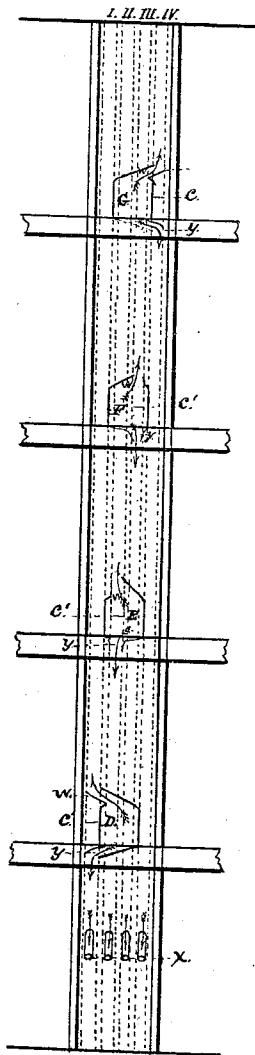


Fig. 5.

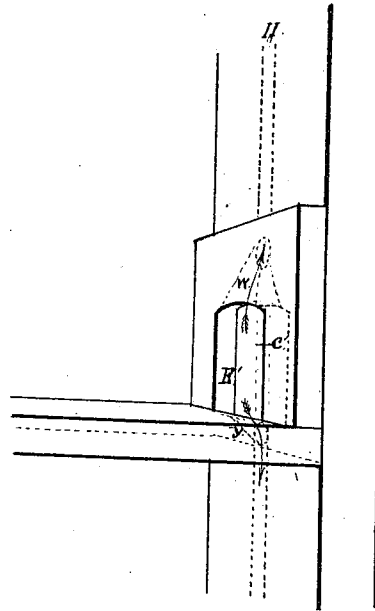
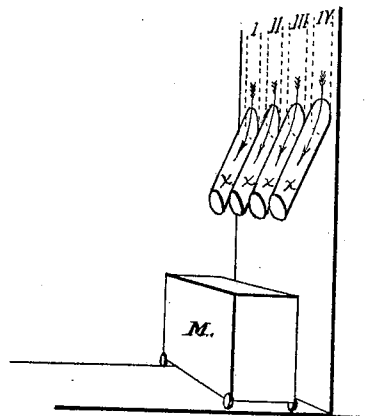


Fig. 6.



Witnesses;
Rich^d M. Hoe
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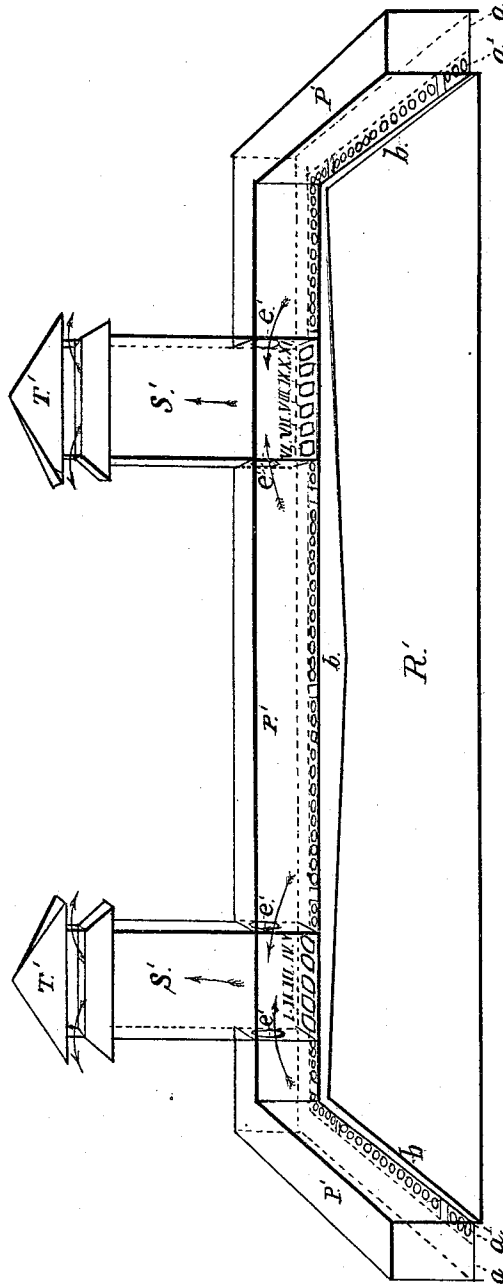
Inventor,
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Fig. 8.



Witnesses;
Rich^d M. Hoe
Edw^d H. Lawrence

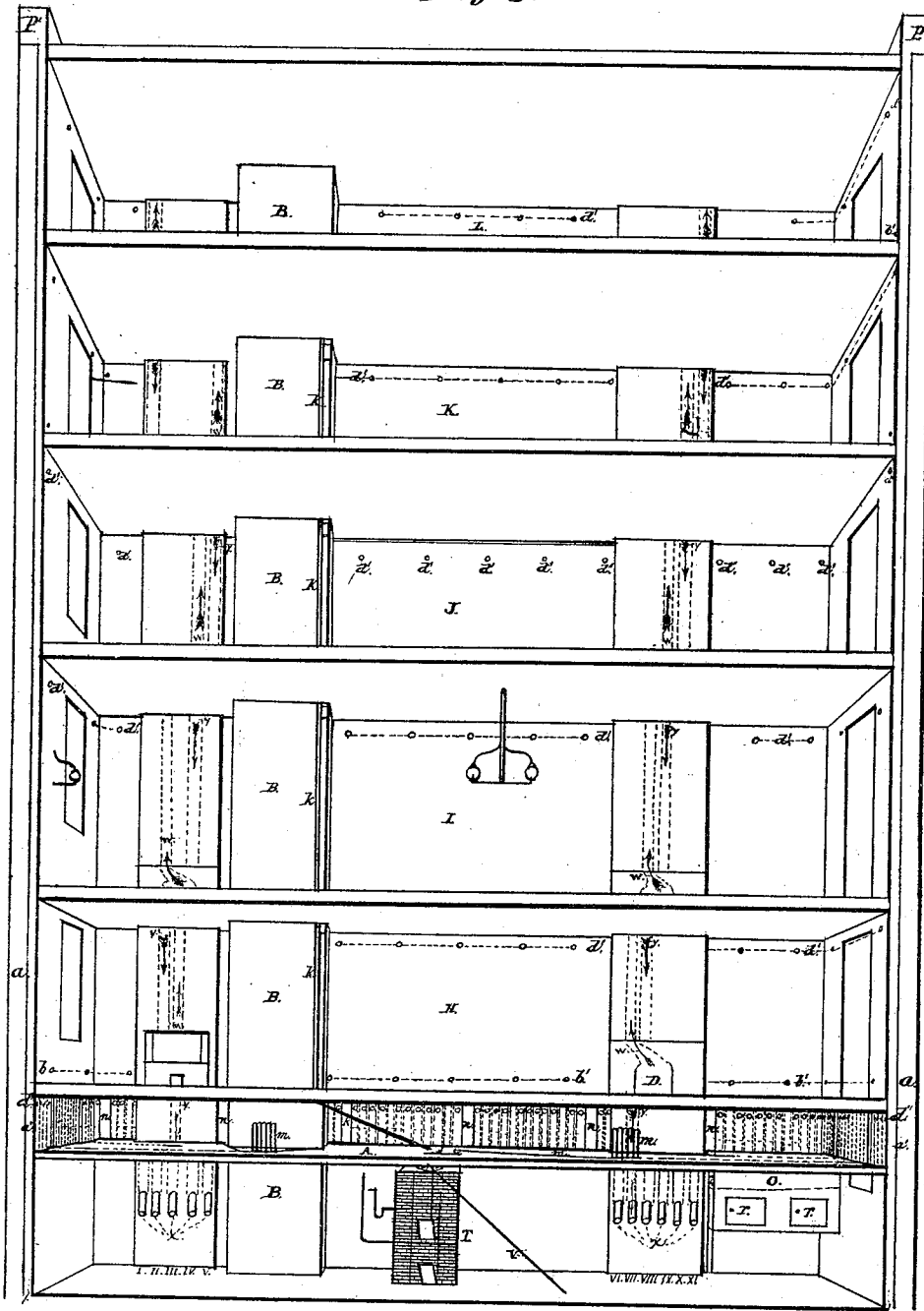
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Fig. 9.



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UNITED STATES PATENT OFFICE.

JOHN S. LINSLEY, OF NEW YORK, N. Y.

IMPROVEMENT IN MODES OF VENTILATING, WARMING, AND COOLING BUILDINGS.

Specification forming part of Letters Patent No. **175,719**, dated April 4, 1876; application filed July 10, 1875.

To all whom it may concern:

Be it known that I, JOHN S. LINSLEY, of the city of New York, county of New York, State of New York, have invented a new and useful Improvement in the Mode of Ventilating, Warming, and Cooling Buildings, which improvement is fully set forth in the following specification, reference being had to the accompanying drawings.

The objects of my invention are to render, in the manner and by the means as hereinafter stated, the interior atmosphere of a dwelling-house or building constantly fresh, pure, and of even or uniform temperature, and of the degree of temperature required for inhalation, and free from hot or cold air currents; also, to secure the separate and independent ventilation of each apartment of a dwelling-house or building, so that the air of each apartment may not be allowed to mix with or contaminate the air of any other apartment.

These objects are secured and these results produced by the following means:

First, by an air chamber or reservoir to be constructed between the first floor of the dwelling-house or building and the cellar of the same, extending underneath the whole building, the outer walls of the building constituting the outer walls of the reservoir, such reservoir to be of sufficient depth only to admit of entrance for adjustment of apparatus or repairs—say three feet—and the floor and ceiling thereof to be perfectly air-tight, except as hereinafter mentioned. The design of this reservoir is to supply air for all the interior portion of the building erected above it, and in as fresh and pure a state as it is found to be outside of the building. The air for such supply is received into the reservoir through horizontal flues, which may be constructed of any building material, and of such form and dimensions as shall be required, according to the size of the building, to keep the latter constantly supplied with fresh air, these flues to be so constructed as to communicate, through openings in the exterior walls, to the external air, and to extend a considerable distance into the interior space of the reservoir, as shown in the drawings—the exterior openings to the flues to be protected from dust and foreign particles by

screens of fine wire or perforated metal, and the ingress of air to be controlled and regulated by registers or dampers. The temperature of the air in the reservoir, whenever necessitated by the coldness of the weather, may be increased to the degree of temperature required—say, from 48° to 60° Fahrenheit, or as may be required—by passing it over the steam pipes or coils of steam warming apparatus, the coils to be placed over the apertures of two or more of the flues admitting fresh air; also, the warmth is augmented by a pipe passing around the outer portion of the reservoir. The air of the reservoir is conducted to the upper interior portions of the building through apertures in certain of the flues, which comprise the interior or tubular walls of the building, and which communicate between the reservoir and such upper interior portions, as hereinafter mentioned and described.

Second, by means of tubular walls composed of material so shaped and adjusted as to form a firm wall, and containing a series of vertical parallel ventiducts in close succession and proximity. The area and dimensions of the ventiducts will depend upon the area and height of building, and are to be so constructed that they shall extend from the floor of the reservoir to the top of the building. The greater part of these flues have an aperture near the ceiling of the reservoir, to conduct fresh air through such flues to every apartment in the building, the air so conducted entering each apartment through a similar aperture a few inches below the ceiling of such apartment. Each ventiduct thus conveying fresh air from the reservoir is closed immediately above the aperture in the apartment to which fresh air is thus conveyed, and becomes a foul-air ventiduct for the apartment immediately above. The foul air passes into such ventiduct through an aperture a few inches above the floor, and is conducted to the foul-air chamber at the top of the building, and from thence to the exterior air, as shown in the drawings, the size of the aperture to be three or more inches in diameter, corresponding to the diameter of the flue or ventiduct, or as may be required, such apertures to be provided with registers to regulate the out-

flow of air as the temperature and atmospheric conditions shall require. The outer walls of the building may be constructed of any desirable material and in any style of architecture. The tubular walls or lining of the building may be constructed of brick, concrete, concrete blocks, hollow brick, hollow blocks of artificial stone, tubular concrete blocks or pipes of concrete, metal pipes of tin or iron, or of any material used in building, but in such a manner as to form, when erected, hollow spaces of any desired shape, round or square, so as to constitute a series of vertical tubes or ventiducts of uniform diameter and dimensions throughout their whole length, and with a smooth interior surface.

Third, by means of an improved chimney and fire-place constructed of the same material as that used in the tubular walls, so built as to form, when completed, a continuous flue or stack of flues of vertical parallel cylinders extending from the foundation to the roof, opening out in the space above the roof, as shown in the drawings, each fire-place to have an independent flue extending from cellar to roof, and of the same dimensions throughout, that part above the fire-place being the smoke-flue, and communicating with the same by a funnel-shaped passage, and that portion below the fire-place to be the ash-flue, opening to the hearth by a similar passage, the smoke-flue to be separated from the ash-flue by a damper, only opened for cleansing the chimney.

Figure 1 shows a horizontal section of the reservoir as applied to the construction of a dwelling-house. *a* is the outer wall. *n n* show the position of piers of masonry, the same being portions of the outer wall designed for the support of iron girders or floor-beams. The tubular portion of the inner wall *b* is shown by a series of or continuous line of circles along the whole inner wall and partitions. The space for stairway is shown at *x*, and the hallway at *y*. The chimney-flues are shown by the Roman numerals I to XI. The location of the fresh-air flues is shown at *d d* and *f f*. The air entering the flues *d d* is tempered by steam-coils placed over the apertures *g g*. The flues *f f* are used for cooling purposes, and may be connected with a refrigerator. The air entering at the external apertures *e e* is conducted to the inner registers *h h*. An air-tight trap-door at *i* admits to reservoir from below. The service steam-pipe *k* enters the reservoir at *j*, and passes to the shaft B, for distribution to the floors of the building. The steam-pipe *m* enters at *l*, and supplies the reservoir with warmth, to temper the supply, for the building, of fresh air.

Fig. 2 is the refrigerator. The air-box *f* is separated from the ice-box *o* by a zinc partition. R R are doors to ice-box. P is the apartment for provisions, with doors at *r r*. The external air enters at *e*, passes through *f*, being cooled by the ice-box *o*, and flows into the reservoir through the aperture *h*.

Fig. 3 is a perspective view of a section of the reservoir and cellar, showing the location of steam warming apparatus, which is inclosed in brick-work.

Fig. 8 illustrates the means of conducting air to and from apartments. The tubular walls *b* of a section of two apartments are shown. The ventiducts *a' a'* conduct fresh air from the reservoir to the apertures *d' d'* in the upper part of each apartment, from which, as shown by the course of the arrows, it flows, and fills the apartment by diffusion, and flows outward by the apertures *b' b'*, near the floor, of every apartment, and, carrying all impurities of respiration, exhalation, &c., is continually conducted to the external air above the building. The ventiducts, which communicate the fresh air from the reservoir to the apartment H, at and through the apertures *d' d'*, terminate by a closure, as shown at *c*, and the ventiducts of the apartment I in a similar manner, so that the fresh-air flues supplying any apartment are entirely disconnected from all other ventiducts or other apartments. Each fresh-air ventiduct that supplies the apartment H becomes the foul-air ventiduct of the apartment I, and, beginning at the closure *c*, extends to the foul-air chamber at the top of the building, so that the foul-air ventiducts of any apartment are entirely separate and distinct from the foul-air flues of every other apartment.

Fig. 9 shows a fire-place of chimney No. II in the plan. The fire-place E communicates with the chimney by the fire-flue *x*, opening into the chimney, as shown by the course of the arrow. The upper portion of the chimney is separated from the lower portion by a damper at *c'*, thus dividing the smoke-flue from the ash-flue.

Fig. 10 shows termination of stack of chimneys by ash-flue conduits *x x x x*, which convey ashes to the receptacle M, located in the ash-room of cellar.

Fig. 11 shows a stack of four chimneys, each fire-place having its independent chimney, which is divided into two parts by the damper *c'*, the upper portion being the smoke-flue and the lower portion the ash-flue.

Fig. 16 shows the method of communicating the foul air of the building to the outer air above the roof R' by means of the foul-air chamber P', which is constructed over the walls *a* and *b*, and into which all the ventiducts of the building open. This foul-air chamber communicates directly with the large ventilating-chimneys S' S', which are built over and above the stack of smoke-flues I to XI, and capped by the ventilating-tops T' T'.

Fig. 17 is an elevation, showing a perspective view of section of five-story dwelling, and illustrating the combination of the principles herein set forth.

I claim as my invention—

1. The construction of the walls of a dwelling-house or building with a series of vertical

parallel ventiducts surrounding the apartments thereof, and opening into and connecting the same with the distributing fresh-air reservoir, located between the cellar and first floor of the building, also opening into and connecting the apartments thereof with the exterior air above the building, substantially as and for the purposes hereinbefore set forth.

2. A foul-air chamber constructed over and upon the tubular and outer walls of a dwelling-house or building, and designed to convey the foul air received through the ventiducts to the large ventilating-chimneys erected over the stacks of smoke-flues, substantially as and for the purposes hereinbefore set forth.

3. The combination of the reservoir, as described, and tubular walls described with the improved chimney and fire-place, as described, in the construction of a dwelling-house or building, substantially as and for the purposes hereinbefore set forth.

4. The combination, substantially as hereinbefore described, of the reservoir, the tubular walls, the chimney, and fire-place with the foul-

air chamber and ventilating chimney-top in the construction of buildings, for the purpose set forth.

5. The combination of the reservoir, the tubular walls, the chimney and fire-place, the foul-air chamber, and ventilated chimney-top with a refrigerator, in the construction of buildings, for the purpose herein set forth.

6. The method of an equal and independent ventilation of each and every apartment of a dwelling-house or building, by means of separate fresh-air flues, communicating from a fresh-air distributing reservoir to each and every apartment of such dwelling-house or building, and by means of separate foul-air flues communicating from each and every apartment of such dwelling-house or building to the external air, substantially as and for the purposes hereinbefore set forth.

JOHN S. LINSLEY.

Witnesses:

RICHD. M. HALL,
KIMBALL C. ATWOOD.