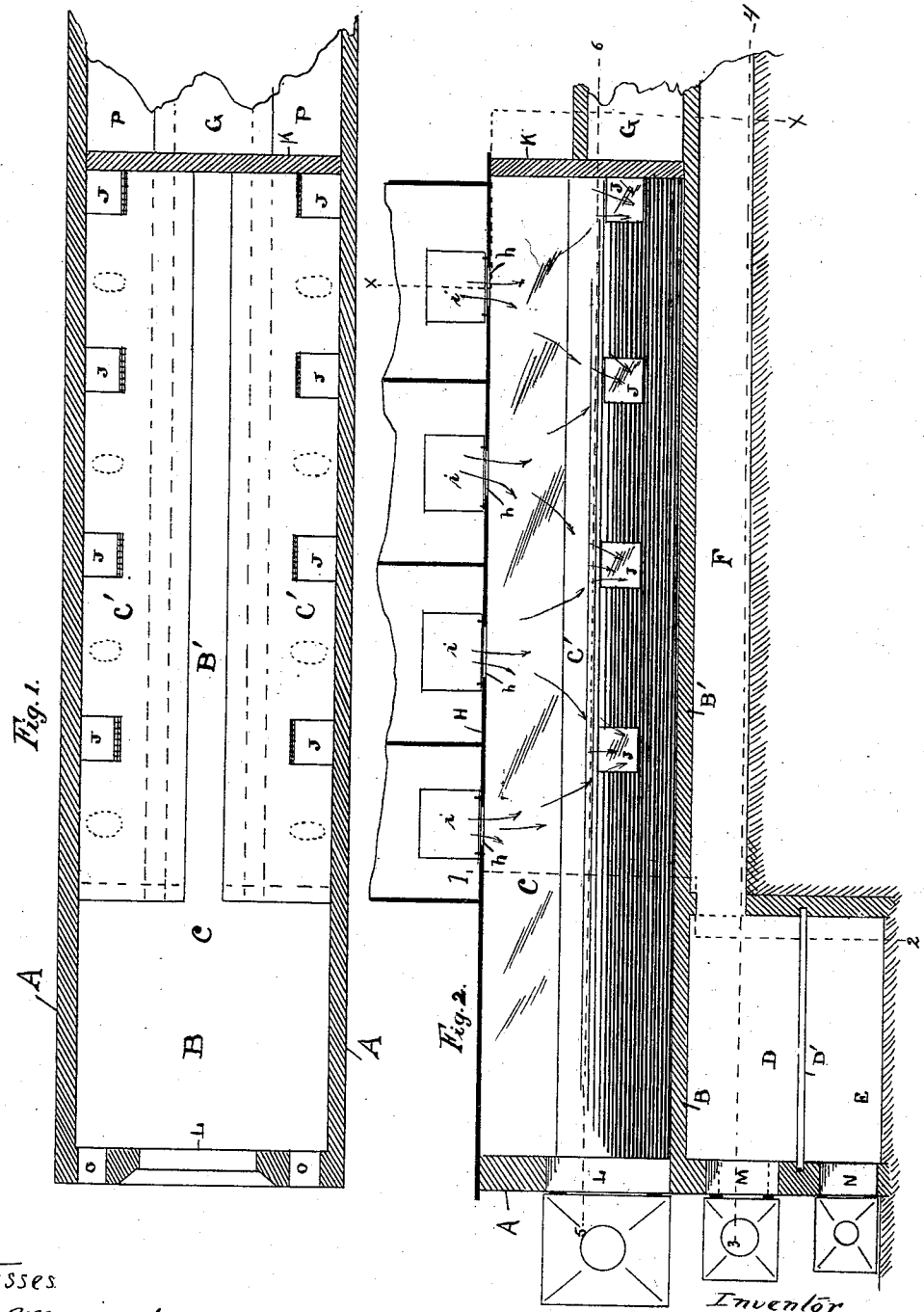
(No Model.)

3 Sheets—Sheet 1.

W. D. DICKSON.

DRY CLOSET.

No. 483,997. Patented Oct. 11, 1892.



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(No Model.) 3 Sheets—Sheet 2.

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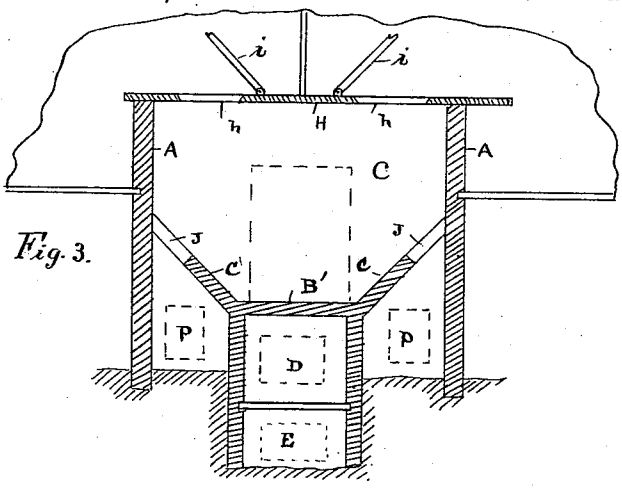

Fig. 3.

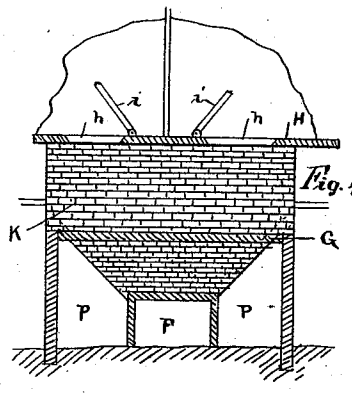

Fig. 4.

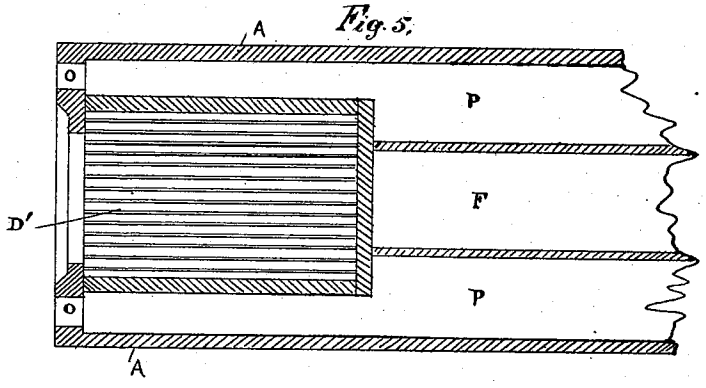

Fig. 5.

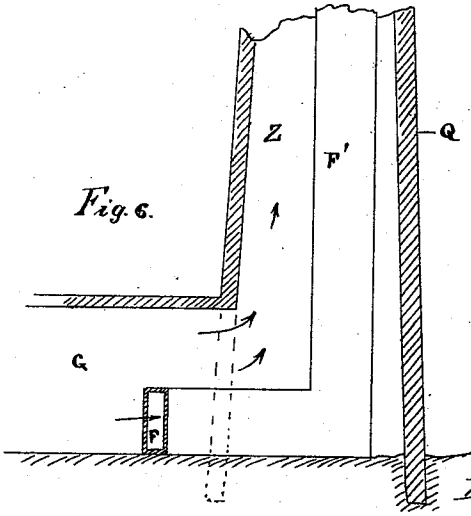

Fig. 6.

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(No Model.) 3 Sheets—Sheet 3.

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DRY CLOSET.

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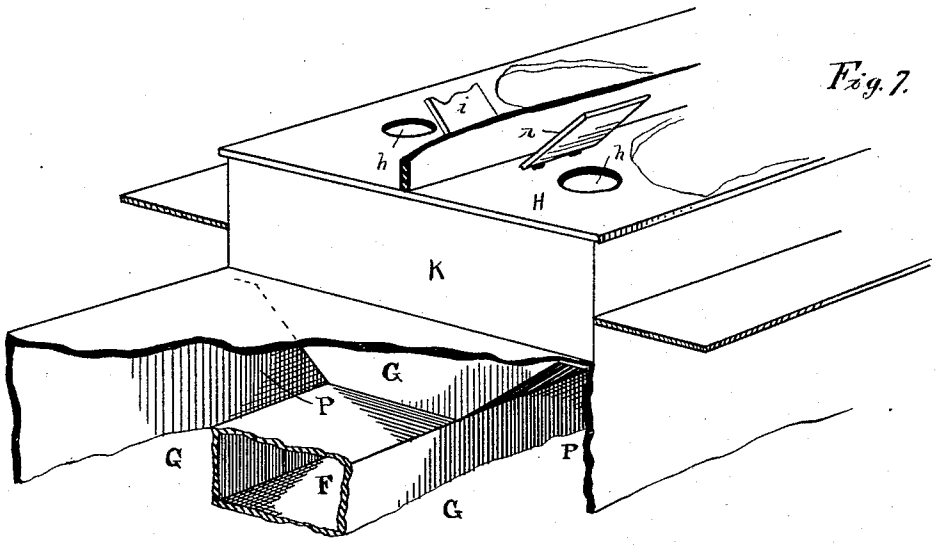

Fig. 7.

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UNITED STATES PATENT OFFICE.

WILLIAM D. DICKSON, OF PEORIA, ILLINOIS.

DRY CLOSET.

SPECIFICATION forming part of Letters Patent No. 483,997, dated October 11, 1892.

Application filed October 22, 1891. Serial No. 409,489. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM D. DICKSON, a citizen of the United States, residing at Peoria, in the county of Peoria and State of Illinois, have invented certain new and useful Improvements in Dry Closets; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to certain new and useful improvements in dry closets, by means of which a closet is provided simple in construction and efficient in operation for the purpose for which designed.

More particularly my invention relates to that class of dry closets in which the deposits are dried by a current of air drawn through the vault, the air being heated by means of a furnace provided in connection with the structure, the heat and smoke emanating therefrom being utilized in said vault, as hereinafter more fully set forth.

The essential features of my invention consist of its simple structure and practical and novel means of creating a continuous draft through the foul-air chamber or vault, where the deposits are received, the facility for heating said current of air to add to its evaporative property and the ready escape of the foul air through ducts provided into the vent-shaft, and of the ready and convenient means of collecting and burning the desiccated deposits.

That my invention may be more fully understood, reference may be had to the accompanying drawings, in which—

Figure 1 is a transverse sectional view through the line 5 6 of Fig. 2, the said figure being supposed to be entire. Fig. 2 is a longitudinal vertical section of a dry closet, showing the construction and arrangement in detail of a portion of its several parts. Fig. 3 is a vertical cut sectional view through the line 1 2 in Fig. 2, the said figure being presumed to be entire. Fig. 4 is a vertical cut sectional view through the line *x x* in Fig. 2, the said figure being presumed to be entire. Fig. 5 is a transverse sectional view of a portion of a closet through the line 3 4. Fig. 6 is a vertical section of the vent-shaft and connecting-ducts with inclosed smoke-flue. Fig. 7 is a perspective view showing the several ducts or outlets from vault.

In the figures, A represents vertical walls, which, together with suitable cross-connections of brick or other material, form the main framework of the closet, which is internally divided into several compartments—namely, foul-air vault or compartment that receives deposits, fire and smoke duct, foul-air ducts, fire-box, and ash-pit, the superstructure above the vault being constructed in any form and arranged in any manner that will adapt it for convenient use in connection with the dry closet proper.

C indicates the vault of the dry closet, with seats over it in the usual manner, as represented by *h h h h;* C′ C′, obliquely-bearing sides bearing downward from the side walls A A to the central and bottom portion of the vault, which is on a line with the platform or open space B, which is on a line with the lower edge of the opening L in the forward part of the structure.

K is a vertical wall effectually closing the rear end of the foul-air vault. Below the foul-air vault and separated therefrom by means of the vertical and oblique partitions represented by C′ C′ and B′ are the foul-air ducts P P, the fire-box D, separated from the vault by the transverse horizontal partition B, and the hot-air and smoke flue F, the ash-pit E being separated from the fire-box by means of the grate D′. The partitions B B′ C′ C′ may be made of brick or any absorbent material, the said ducts P P and opening into the general duct G, which in turn opens into the vent-shaft Z, the smoke-flue continuing through the general duct G in closed form and connects with the smoke-stack F′.

In the front wall are provided the openings L M N O O, L opening into the foul-air vault, M into the fire-box, N into the ash-pit, and O O into the foul-air ducts, each of said openings being provided with a suitable door to close over the same. At intervals throughout the oblique partitions C′ C′ are provided the perforations J, opening into the foul-air ducts below, the said openings being located adjacent to the side walls and at the upper portions of the said oblique partitions and at

points immediately between the holes *h* in the seat-board above, as indicated in Fig. 1. The smoke-flue F is closed or walled, so that there is no communication between the same and the foul-air ducts at its sides. The size and form of the fire-box with reference to the general structure is indicated in Fig. 5, but may be of any size or form desired, and the smoke-flue F may be made round or square, as may best adapt it to the application to which it may be desired to be used, and the general form of the entire structure and of its various parts may be modified at will for convenience of adaptation to practical use.

By the arrangement here shown the excrement is received in the vault C, where the fecal matter is desiccated by the air drawn through the vault, the same entering through the holes in the seat-boards above, the dried residue of such matter or the most of it being deposited upon the central floor of the vault, due to the inclined form of the partitions C′ C′ throwing it into this position, where it is readily raked forward upon the floor B, immediately before the opening L, in which position it is shoveled into the fire-box below, where it is finally burned, and the moisture or liquid deposited in the vault is absorbed by the brick and constantly evaporated by the passing current of air, and all odors arising therefrom or from the fecal matter are conveyed by the current of air through the openings J into the foul-air ducts P P, through the general duct G into the ventilating-shaft Z, and from thence to the atmosphere above the building, thus effectually performing the office of ventilation. I find that layers of brick arranged to form the partition serve as an absorbent for the liquid admirably, it being sufficient to absorb all of the liquid, so that none percolates through the bottom of the vault, and the layer of brick makes a floor that can readily be cleaned off, if desired, and also enables the deposit thereon to be dried out more quickly, as the brick partition or the vertical portion thereof B′ also forms the upper wall of the heat or smoke flue connected with the fire-box. The particular advantage of the heat or smoke flue being placed immediately below the vault and being separated therefrom merely by the brick partition is that the heat from the fire-box D is utilized not only to dry out the excrement deposited in the vault, but also to heat the air that enters the vault, thereby increasing its absorbent or evaporative capacity, which is thus applied throughout the entire length of the vault, and as it is a well-settled natural law that the affinity of dry air for moisture increases at a greater ratio than its increase of temperature it follows that this adds greatly to the evaporative or absorbent power of the current of air passing through the vault, and this, added to the effect produced by the smoke and heat passing under the partition B′, increases greatly the efficiency of the apparatus.

The particular advantages possessed by the use of my improved dry closet consists not only in its structural advantage, but in its perfect adaptation for ventilation. It has an advantage over dry closets designed to utilize impure air drawn from the various rooms of the building, thus establishing a direct connection between the foul-air vault and the various rooms, in that there is no connection between the vault in my closet with the said rooms, thus rendering it impossible for a reverse current to be established bearing the foul air upward into the various rooms instead of through the vent-flue, this being liable to occur with dry closets of that class, and to prevent such occurrence the greatest care must be exercised, and the said closet is practically inoperative for the purpose of ventilation except that a fire be built in the furnace or stove to establish the current, while by the use of my improved dry closet a ready, continuous, and perfect flow of air is established from the room containing the closet through the openings in the seats into the foul-air vault, and from thence is conducted, as previously explained, to the atmosphere above the building. A further advantage possessed by its use is the facility provided by the platform B for drawing the fecal matter forward to be readily dried and evaporated or desiccated by the heat from the fire-box immediately below the platform B to render the same more combustible, and thus enabling the vault to be cleaned oftener than it could otherwise be were this provision not made, and which provision is not made in any dry closets now in use, and by the fecal matter being so drawn from beneath the seats it is prevented from being saturated by liquid deposits, which if they remained in their original position would not soon dry out.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a dry closet, a vault having arranged therein the transverse partition B and its extension B′, the partitions C′ C′, bearing from the sides of the vault obliquely downward to the level of the transverse partitions B and upon the partition B′, so arranged as to facilitate the deposit of excrement in the center of the vault, and having the openings J J J, &c., as ducts for the transmission of foul air into the ducts P P, the heat or smoke duct F, the foul-air ducts P P, and the partitions composed of layers of brick or similar absorbent material arranged to receive, absorb, and retain the liquid matter deposited in the vault until the same is evaporated by the current of air passing through the vault, all substantially as described and set forth.

2. In combination with the vault C of a dry closet, the transverse absorbent partitions B B′, and oblique partitions C′ C′, with an air-space above and a fire-box below the partition B, a heat or smoke flue below the partition B′, and air-ducts below the partitions C′ C′, and with perforations J J J, &c., to pro-

vide air-ducts connecting the vault C with the air-ducts P P, all substantially as described and set forth.

3. The combination, in a dry closet, of the vault C, connected with the foul-air ducts P P by means of the perforations J J J, &c., in the partitions C′ C′, the ducts P P, connected with the vent-shaft at one end for the passage of a current of air, the fire-box D, separated from the vault C by means of the partition B, and the duct F underneath the vault and connected at one end to a smoke-flue F′ for the passage of smoke, all substantially as shown and described.

4. The combination, with a building, of a vault or dry closet, as C, constructed with the holes *h h h*, &c., for admission of air from the room containing the closet or from the exterior of the building by suitable ducts, the transverse partitions B B′, separating the fire-box from the vault proper, the oblique partitions C′ C′, provided with the openings J J J, &c., the fire and smoke duct F, connected with suitable flue, and foul-air ducts P P, connected with flue in suitable manner, all substantially as described and set forth.

5. In combination with a building, a dry closet constructed as follows: of the frame-work A A, provided with suitable cross-partitions, perpendicular and oblique partitions forming the vault C, the same connected from without by the air-ducts or seat-holes *h h h h* for the admission of air into the vault, the foul-air ducts P P, separated from the vault C by means of the oblique partitions C′ C′, but connected therewith for the purpose of free passage of air by means of the perforations or openings J J J, &c., in said partitions C′ C′, the fire-box D, separated from the vault C by means of the transverse partition B, the heat and smoke duct F, opening out of the fire-box and separated from the vault C by means of the partition B′, the general duct G, connected with the foul-air ducts P P, the vent-shaft Z, connected with the air-duct G and inclosing the smoke-flue F′, the ash-pit E, and the openings L M N O O, connected with the various compartments within the structure and all provided with suitable doors, all substantially as shown.

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

WILLIAM D. DICKSON.

Witnesses:

BOB MCCORMICK,

JOSIE TEFFT.