(No Model.) 5 Sheets—Sheet 1.

F. G. WARD.

DRY CLOSET SYSTEM.

No. 493,320. Patented Mar. 14, 1893.

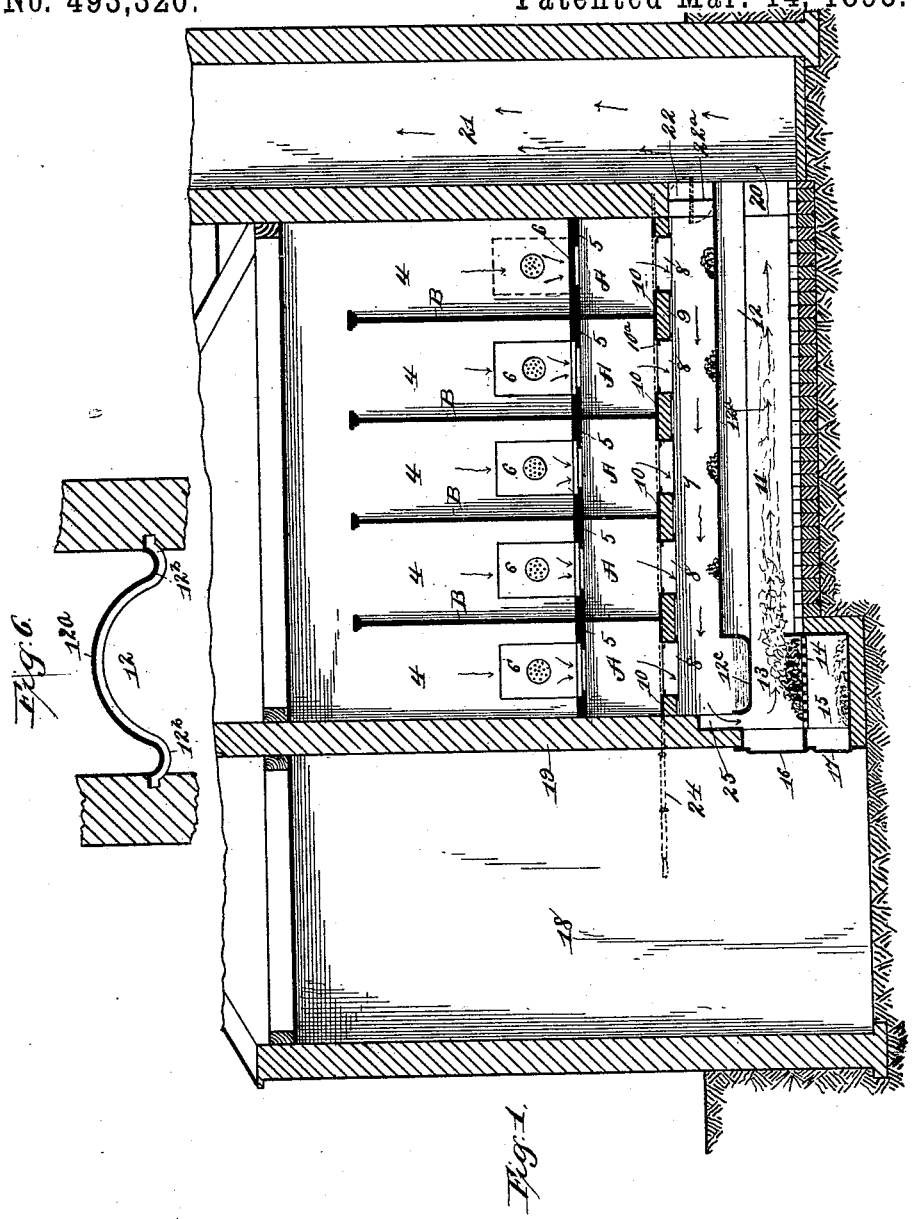


Fig. 2.

Fig. 3.

WITNESSES:

E. C. Hudeman

C. E. Doyle.

INVENTOR

F. G. Ward

BY

Brown & Co.

his ATTORNEYS

(No Model.) 5 Sheets—Sheet 2.

F. G. WARD.

DRY CLOSET SYSTEM.

No. 493,320. Patented Mar. 14, 1893.

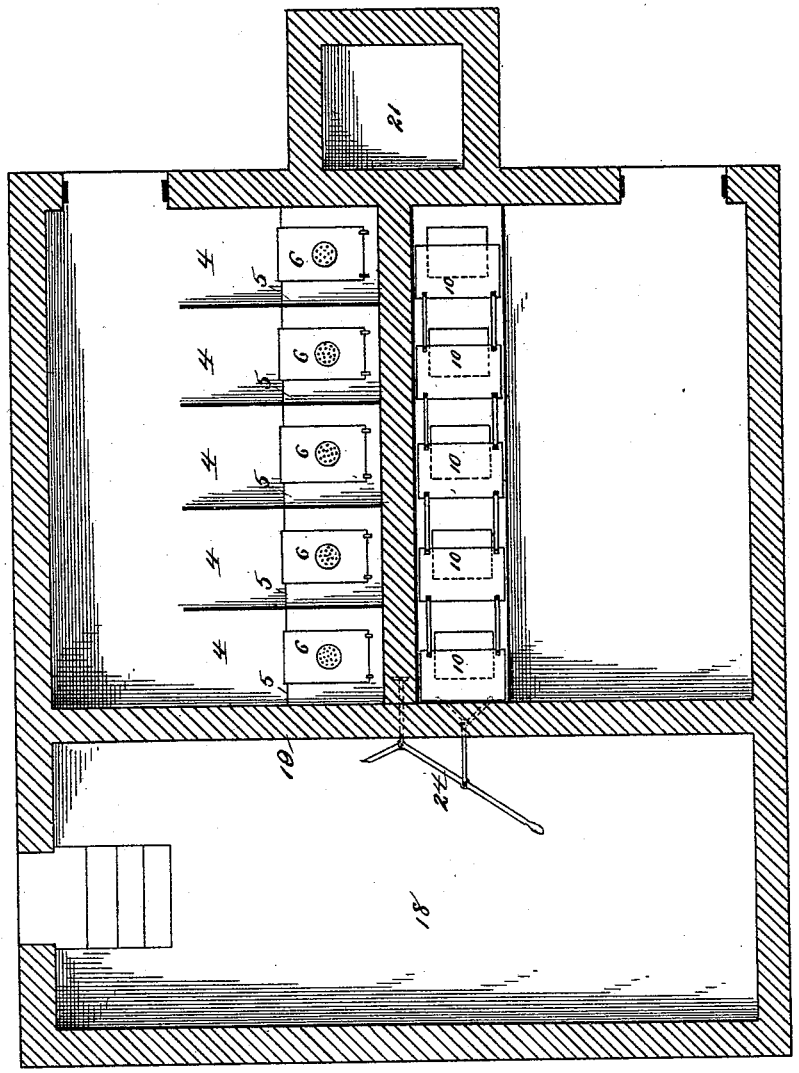


Fig. 2.

WITNESSES:

E. C. Hudeman

INVENTOR

F. G. Ward

BY

Brock & Co.

his ATTORNEYS

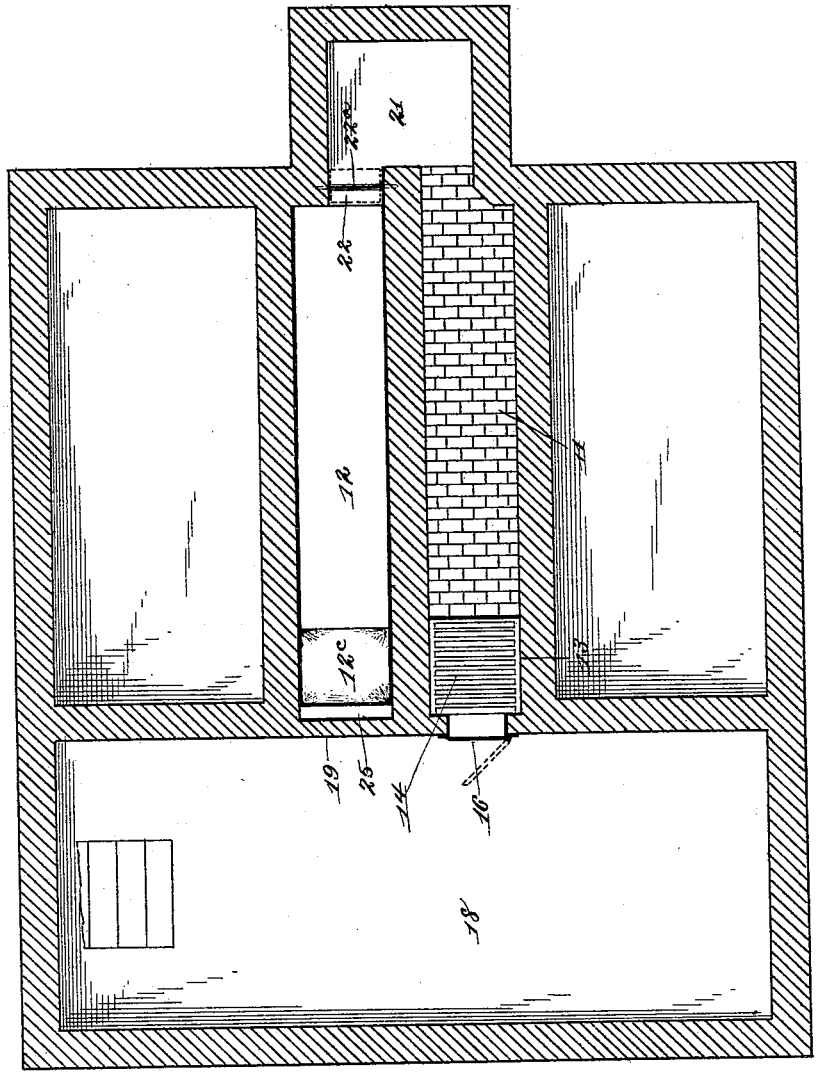
(No Model.) 5 Sheets—Sheet 3.

F. G. WARD.

DRY CLOSET SYSTEM.

No. 493,320. Patented Mar. 14, 1893.

Fig. 3.



WITNESSES:

E. C. Hinderman

D. E. Dyer.

INVENTOR

F. G. Ward

BY

Brown & Co.

his ATTORNEYS

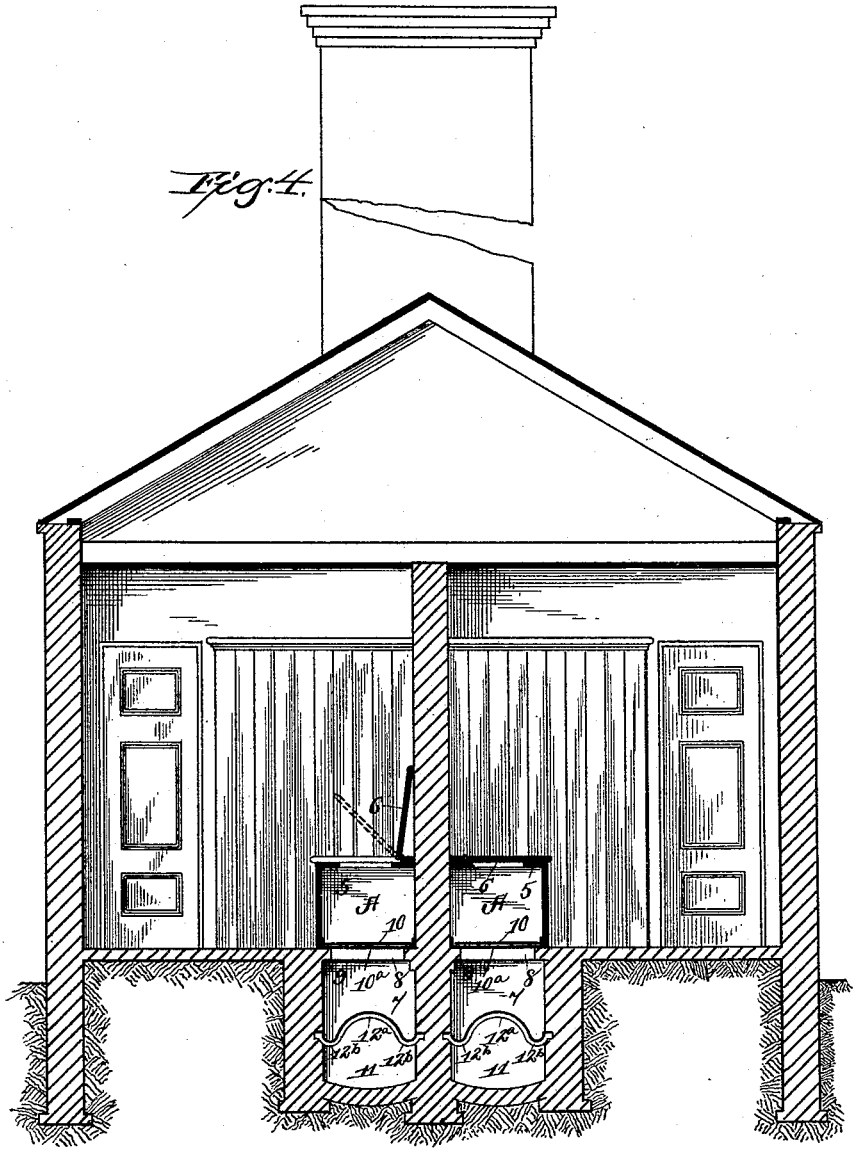
(No Model.) 5 Sheets—Sheet 4.

F. G. WARD.

DRY CLOSET SYSTEM.

No. 493,320. Patented Mar. 14, 1893.

Fig. 4.



WITNESSES:

E. C. Hazelman

O. E. Duffy

INVENTOR

F. G. Ward

BY

Albert G. Davis & Co.

HIS ATTORNEYS

(No Model.) 5 Sheets—Sheet 5.

F. G. WARD.

DRY CLOSET SYSTEM.

No. 493,320. Patented Mar. 14, 1893.

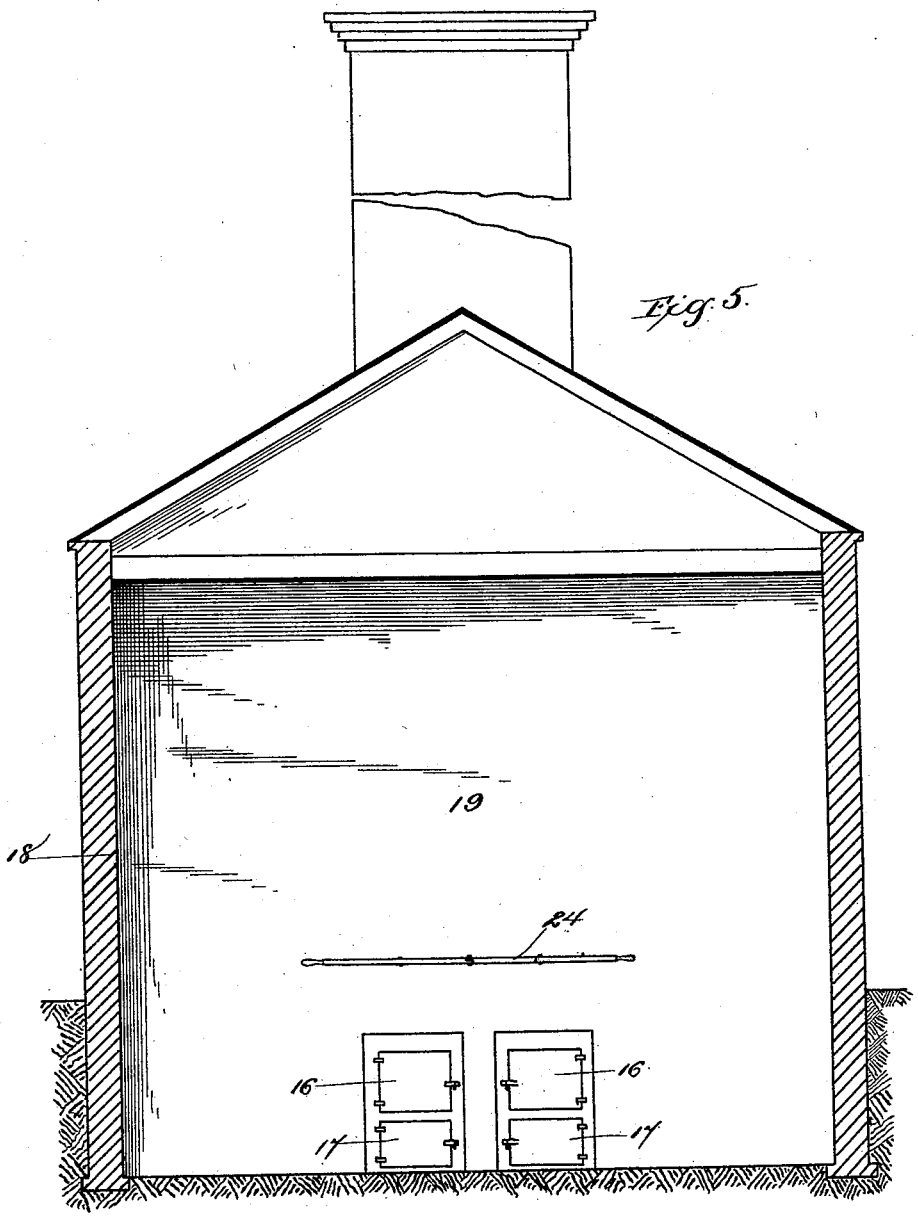


Fig. 5.

WITNESSES:

E. C. Hunderdan

O. E. Duffy.

INVENTOR

F. G. Ward

BY

Wm. Brown & Co.

HIS ATTORNEYS

UNITED STATES PATENT OFFICE.

FREDERICK G. WARD, OF ALLEGHENY, PENNSYLVANIA.

DRY-CLOSET SYSTEM.

SPECIFICATION forming part of Letters Patent No. 493,320, dated March 14, 1893.

Application filed July 28, 1892. Serial No. 441,525. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK G. WARD, a citizen of the United States, residing at Allegheny, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Dry-Closet System, of which the following is a specification.

My invention relates to various improvements in dry closet systems for schools, factories and other buildings where accommodations for numerous users are required; and the object of my improvement is to provide convenient and effective means for the reception and subsequent disposition of the fecal matter without contamination of the soil or evolution of foul-smelling or deleterious gases in the closets or the building in which they are arranged.

To this end my invention consists, mainly, in the combination of a deposit or excrement chamber, a subjacent heating chamber, a fire-place communicating with the heating chamber, with an intervening metallic floor between the deposit and heating chambers, and an exit flue, communicating with the heating chamber, and indirectly communicating with the deposit chamber, to carry off products of combustion.

Further objects and advantages of my invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claims.

In the drawings; Figure 1 is a vertical longitudinal section through a dry closet system embodying my invention. Fig. 2 is a horizontal longitudinal section through the same; the closets upon one side being shown in plan above the seats, and on the other below them. Fig. 3 is a similar view, taken through the heating chamber. Fig. 4 is a vertical transverse section through the closet rooms. Fig. 5 is a similar section through the fire-place room. Fig. 6 is a detail sectional view of the floor of the deposit chamber.

In carrying out my invention I employ a building or apartment of suitable size, comprising one or more closet rooms, A A, separated from one another by a vertical partition or partitions, B. In this instance two closet rooms are shown, being the construction adopted where the system is designed for use by persons of both sexes. Closets 4 are arranged side by side in a longitudinal series in each closet room, each closet being provided with a suitable top, or seat, 5, having an opening in its top or lid, 6.

A deposit or excrement chamber 7 is formed below and common to the several closets of each closet room, the closets communicating with said chamber by delivery openings 8, formed in the floor 9, of the closet room, below the several seats, for the passage of fecal matter therefrom into the deposit chamber. The floor 9, and the walls of the deposit chamber, and of the heating chamber, presently to be described are of iron, or other incombustible material, and the delivery openings 8, may be closed, when required, by sliding plates, 10, also of iron or other incombustible material, which are kept open during the periods in which the closets are in use.

A heating chamber, 11, is located below each deposit chamber, 7, extending the entire length of the series of seats, and separated from said deposit chamber by a longitudinal floor, 12, which forms the floor or bottom of the latter and is so constructed as to be impermeable to liquid excrement. The bottom of the heating chamber may be built of brick paved on sand, or other fire and heat resisting material, and is concaved in form, and the partition 2, which separated the closet rooms, and which is also of incombustible material, extends to the bottom of the heating chambers, thereby preventing any possible communication between the male and female compartments of the closet, and rendering them noiseless one to the other.

The floor, 12, which separates the deposit and heating chambers is a curved iron plate, raised in its center to form a semi-circular rib or ridge, 12^a, with its edges turned up to form a trough, 12^b, at either side so as to allow liquid excrement to run forward to the fireplace end where it flows into a cast iron tray or caldron, 12^c, immediately over the fire-place.

The fire-place, 13, having a suitable grate 14, ash-pit, 15, fire door, 16, and ash-pit door, 17, is built at one end of the heating chamber, the fire and ash pit doors opening into a fuel room, 18, which is separated from the closet rooms and chambers by a wall 19, and may be provided with a fuel bin or storage chamber.

The heating chamber communicates, by a vent passage, 20, at its opposite end, to that at which the fire place is located, with an exit flue or stack, 21, leading to the outside of the building. A similar vent passage 22 is provided between the deposit chamber and the exit flue, said passage being provided with a damper, 22^a.

The plates 10, which govern the delivery openings 8 of each series of closets are connected for simultaneous operation and are provided with an operating arm or lever 24 which projects into the fuel room so that the entire series of slides may be simultaneously opened or closed, as desired, by the movement of said arm.

In Fig. 2 of the drawings the plates 10 of each series are horizontally connected and are fitted to slide in longitudinal guides, 10^a, but any other similar arrangement of the slides may be provided.

In operation, a moderate fire is maintained in the fire-place of each heating chamber, by which a continuous circulation of air is produced horizontally through the heating chamber and vertically through the exit flue, whereby the products of combustion are carried to the outside of the building. This produces a downward draft through the closets, the seat lids of which are provided with perforations, as described, for the purpose of allowing a small volume of air to pass through the same (should they be closed) into the excrement chamber, carrying all the odors and poisonous gases forward and down through the heating chamber. This is effected by the vent stack having a preponderance of draft over all the openings in the seat lids. Should all of the seats be in use at one time the same preponderance of draft will be sufficient for the purpose aforesaid, namely, preventing the escape of offensive odors or poisonous gases.

Communication is established between the deposit chamber and the heating chamber, at the end nearest the fire place, by the opening 25, whereby the draft created by the heated air from the fire passing up the exit flue is communicated directly to the deposit chamber and affects the closets individually, as described.

That portion of the liquid excrement which is not completely evaporated and conveyed away by the circulation of air through the deposit chamber, after falling upon the convex floor of the latter, is, by the gutters or troughs in said floor, carried forward to the tray or evaporating caldron, above described, which is located directly above the fire and is there evaporated and the steam, odor, and other products of evaporation therefrom are carried through the heating chamber to the exit flue. The solid fecal matter which rests upon the convex floor 12 is dried and deodorized by the heat, communicated through the iron floor, so that it is rendered combustible, and may be removed by burning out at proper intervals. For this purpose the plates 10 are closed and the dried fecal matter in the deposit chamber is ignited, combustion being maintained by the draft of the exit flue, the damper in the opening 22 being opened during this operation. As before stated the heating and deposit chambers are composed and constructed of incombustible material, whereby the periodical burning out of their contents may be conducted without danger of fire being communicated to other parts of the structure.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. In a dry closet system, the combination of a series of closets, a deposit chamber common to said closets, a tray or caldron located at one end of the deposit chamber to receive the liquid excrement, a heating chamber subjacent to the deposit chamber and communicating at one end with an exit flue, a fire-place arranged at the opposite end of the heating chamber subjacent to the said tray or caldron, and an air-passage connecting the deposit and heating chambers adjacent to the tray or caldron, whereby the vapors arising from the excrement are introduced into the heating chamber above the fire-place, substantially as specified.

2. In a dry closet system, the combination with a series of closets, and a deposit chamber common thereto, of an imperforate plate forming the floor of the deposit chamber and having a central longitudinal draining rib, 12^a, to receive the solid excrement, and parallel gutters or troughs upon opposite sides of the rib to receive the liquid excrement, a tray or caldron located at one end of the deposit chamber to receive the liquid excrement from said gutters or troughs, a heating chamber subjacent to the deposit chamber, and communicating at one end with an exit flue, a fire-place arranged in the heating chamber subjacent to the tray or caldron, and an air-passage connecting the heating and deposit chambers adjacent to the tray or caldron and fire-place, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

FREDERICK G. WARD.

Witnesses:
A. D. WILSON,
VICTOR W. BROWN.