P. W. FOSTER.

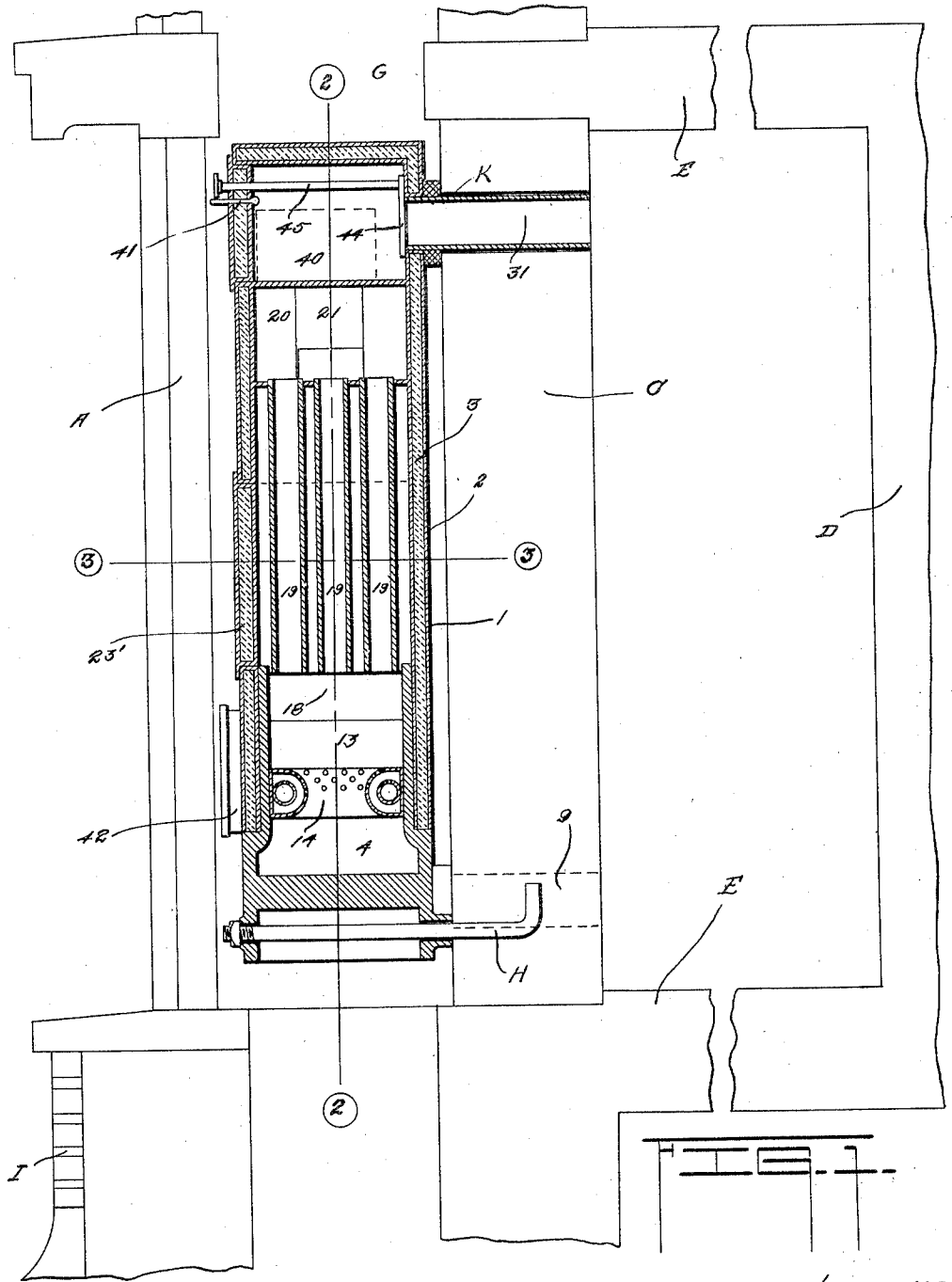
DESICCATING APPARATUS.

APPLICATION FILED MAR. 29, 1913.

1,081,227.

Patented Dec. 9, 1913.

3 SHEETS—SHEET 1.



WITNESSES

W. E. Berg

Mildred T. Boman

INVENTOR

Percy W. Foster

By LaPorte & Bean

ATT'YS.

P. W. FOSTER.

DESICCATING APPARATUS.

APPLICATION FILED MAR. 29, 1913.

1,081,227.

Patented Dec. 9, 1913.

3 SHEETS—SHEET 2.

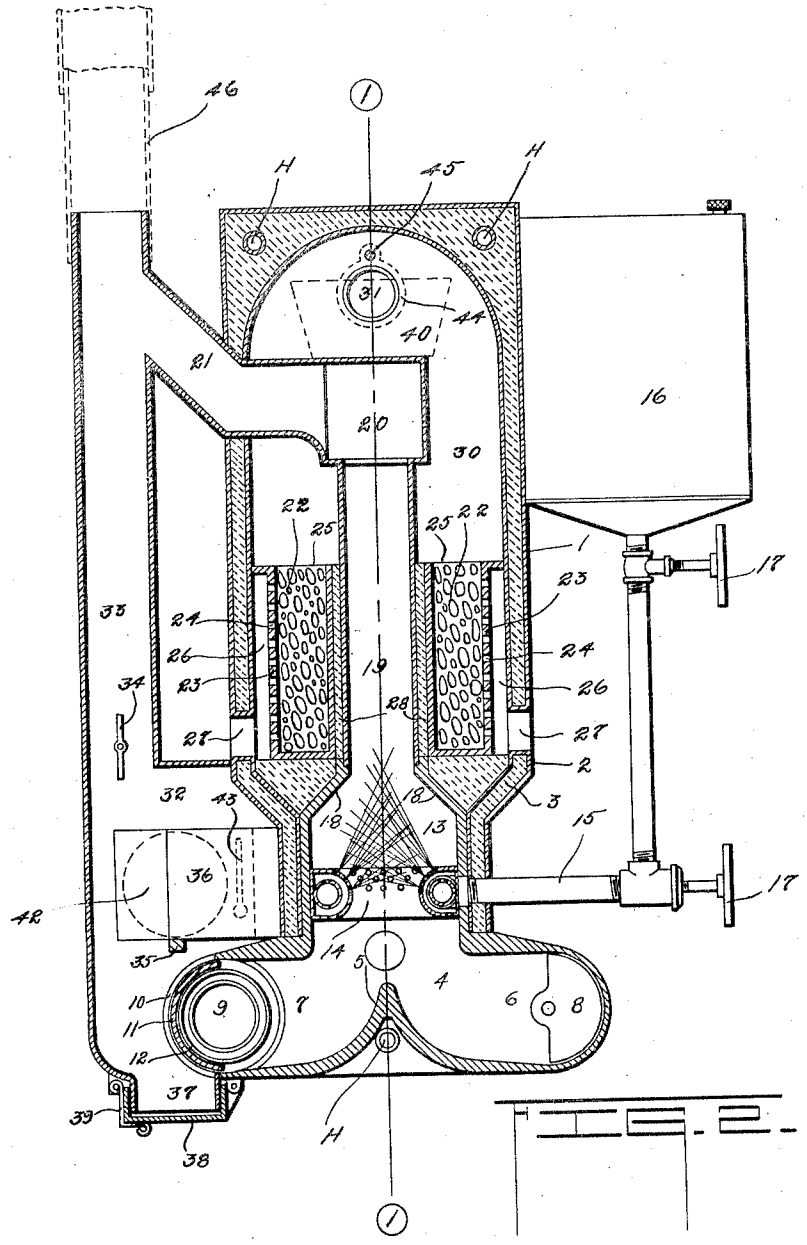


FIG. 2.

WITNESSES

M. L. Berg

Mildred F. Boman

INVENTOR

Percy W. Foster

By La Porte & Bean.

Atty's.

P. W. FOSTER.

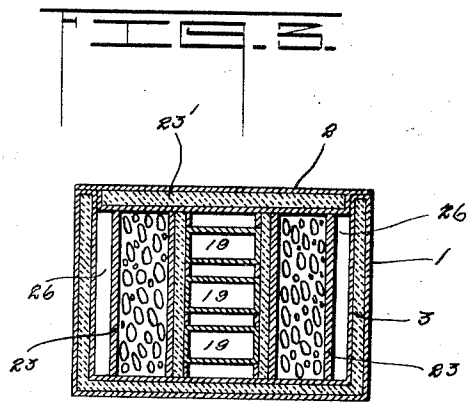
DESICCATING APPARATUS.

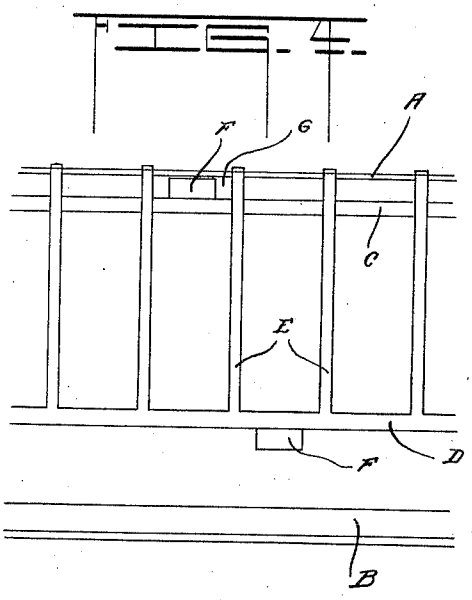
APPLICATION FILED MAR. 29, 1913.

1,081,227.

Patented Dec. 9, 1913.

3 SHEETS—SHEET 3.





WITNESSES

W. B. Berg

Mildred J. Bowman

INVENTOR

Percy W. Foster.

By La Pahe & Beam.

ATT'YS

UNITED STATES PATENT OFFICE.

PERCY W. FOSTER, OF PEORIA, ILLINOIS.

DESICCATING APPARATUS.

1,081,227. Specification of Letters Patent. Patented Dec. 9, 1913.

Application filed March 29, 1913. Serial No. 757,520.

To all whom it may concern:

Be it known that I, PERCY W. FOSTER, 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 Desiccating Apparatus, of which the following is a specification.

My invention relates to improvements in desiccating apparatus or apparatus for preserving by extracting moisture.

The principal object of my invention is the provision of an apparatus or means which is of general adaptability and utility and may be readily applied to existing crypts and mausoleums or applied to such structures when built especially for the use of my invention.

A further object is the provision of such a device which is portable, being comparatively compact and simple whereby it may be used in different places and even in connection with separate coffins, caskets or vaults.

A further object is the provision of a device having means to provide a circulation of air through a crypt or vault, with means for extracting moisture from the air before contact with the body and with means for burning or deodorizing and disinfecting the air after contact with the body.

To the accomplishment of the foregoing and such other objects as may hereinafter appear, my invention consists in the construction, combination and arrangement of parts hereinafter described and then sought to be defined in the appended claims, reference being had to the accompanying drawings forming a part hereof and which show for the purpose of illustrative disclosure a preferred embodiment of my invention, it being understood however that various changes may be made in practice within the scope of the claims without digressing from my inventive idea.

In the drawings:—Figure 1 is a vertical longitudinal section taken through one crypt of a mausoleum showing my invention applied thereto, this view being taken substantially on line 1—1 of Fig. 2; Fig. 2 is a transverse vertical section showing an apparatus constructed according to my invention taken substantially on line 2—2 of Fig. 1; Fig. 3 is a horizontal section taken substantially on line 3—3 of Fig. 1; Fig. 4 is a diagrammatic illustration in plan of the arrangement of a crypt in a mausoleum, showing different applications of an apparatus constructed according to my invention.

This invention is designed particularly for preserving bodies by extracting the moisture therefrom so that they retain substantially their life-like appearance, keeping the bodies in good condition for a considerable period of time. It also provides means for deodorizing or disinfecting the gases arising therefrom, in case that should be necessary for the health and convenience of the community. It is a well known physical principle that the rate of evaporation increases with the increase of temperature and that the rate of evaporation is accelerated by the continual change of air and further that the rate of evaporation is accelerated by reducing the pressure. I utilize these principles by constructing an apparatus designed to produce a maximum efficient temperature with a continual change of air and a reduction of pressure so that the best results are obtained in this art. It is to be understood that the body will not stand a greater temperature than 110 degrees Fahr. and that for the best results this temperature must be kept constant.

Referring now to the drawings, the numeral 1 designates a device constructed according to my invention. It is shown substantially rectangular in shape and cross-section, but that is merely a preferred form. The casing 2 is double walled with asbestos or other suitable packing 3 therebetween, and includes an air inlet and gas discharge compartment or chamber, a combustion chamber or compartment communicating with a discharge flue, a moisture extracting compartment through which air is first drawn, and a heating compartment for the dry air, said heating compartment having a discharge flue or pipe to be connected to the top portion of the crypt, coffin, casket or other receptacle containing the body, while the gas discharge compartment is connected by a flue or pipe to the lower portion thereof. This gas discharge compartment may be thrown into communication with a deodorizing or disinfectant compartment having connection with said discharge flue and which may be connected to an absorbing receptacle or compartment.

The air inlet and gas discharge compartment 4 is substantially wider than the cas-

ing 2, and divided by the partial partition 5 into the air inlet portion 6 and the gas discharge portion 7. At one end of the air inlet portion 6 is provided the valve 8, whereby the supply of air is controlled. The gas discharge portion 7 is in communication with the discharge pipe 9 and has its rounded outer side open as at 10 for a portion of its extent, which opening is controlled by semi-cylindrical valve 11, slidably mounted in circular bearings 12, whereby the discharge pipe may be connected directly with the deodorizing and disinfectant compartment or chamber or whereby it may discharge into the combustion chamber or compartment 13. This latter chamber is restricted in size in comparison to the air inlet and gas discharge compartment and has mounted therein any suitable burner 14 which is connected by pipe 15 with the supply tank or receptacle 16 having suitable valves 17 for controlling the flow of the fuel, which may be a hydro-carbon or acetylene. This combustion chamber is further restricted at its top, as at 18, and communicates with a series of flues or pipes 19 spaced apart as shown, to permit the circulation of air therebetween and discharging into hood or heating chamber 20 which extends across the casing from front to rear and communicates with discharge flue 21.

Located immediately above the combustion chamber and surrounding the lower portions of the flues is the air drying or moisture extracting compartment or chamber 22 which has provided therein the receptacles 23 having perforated side walls 24 and open tops 25, said perforated side walls being spaced from the inner wall of the casing 2 to form small air receiving chambers 26, having supply ducts or pipes 27 communicating with the source of air supply outside of said casing 2. A door 23′ is provided to permit ready access to said receptacles. These receptacles 23 are insulated from heat by asbestos or other suitable packing 28, and are adapted to contain suitable moisture extracting material, as calcium chlorid, the air from ducts passing through to the heating chamber or compartment 30. This heating chamber or compartment 30 is formed by the walls of the casing 2, the flues 19 extending thereinto, the hood 20 being located therein and the discharge flue 21 passing therethrough. The dry air therefore is subjected to the heat from these elements and readily raised to the proper temperature, being discharged through inlet flue or pipe 31, into the crypt, coffin, casket or other receptacle.

As stated hereinbefore, a deodorizing or disinfecting compartment 32 may be placed in communication with the gas discharge pipe 9 and chamber 7, by means of opening 10. This compartment 32 is located outside of the main casing 2 and has flue 33 communicating with discharge flue 21 and controlled by damper 34. It has provided therein a support 35 for a suitable receptacle 36 to contain a deodorant or disinfectant such as formaldehyde or permanganate of potash or the like, so that the gases may be discharged in contact therewith and then pass into the discharge flue. As chlorin gas may be used, it may be desirable to absorb it, and therefore I provide the outlet 37, controlled by cap 38 and latch 39, this outlet being adapted to be connected to a suitable receptacle containing a liquid for absorbing purposes. The chlorin gas may be introduced by placing the receptacle 40 containing the same in the heating chamber 30 on top of hood 20 and permitting the escape of said gas previous to the entrance of the air into the body containing receptacle.

For the purpose of regulation and measurement, various indicating and registering instruments may be utilized, as for instance, a thermometer 41 in the heating chamber 20 to indicate the temperature of the air entering the body containing receptacle. A hygrometer may also be used here to determine the per cent. of moisture in the air before contact with the body. I may also provide a hygrometer 42 and thermometer 43 in disinfecting or deodorizing chamber 32 so that reading may be taken and thereby determine in advance the time required under the existing conditions to properly complete the operation.

A valve member 44 may be provided over the opening into inlet pipe or flue 31, said valve being preferably a flap valve and controlled by operating rod 45.

The operation of this apparatus may be described as follows, it being understood that the air inlet pipe or flue 31 and the air and gas discharge or outlet pipe or flue 9 are connected to the top and bottom respectively of the coffin, casket, crypt or other body containing receptacle. In order to create the proper draft and heat the flues 19 and hood 20, air inlet valve 8 is opened thereby creating and increasing the draft for the burner 14. The valve 44 may be kept closed until the temperature of the air in chamber 30 reaches the proper degree. When the valve is opened the air is drawn through ducts 27 and moisture absorbing or extracting chamber 22 into heating chamber 30 and thence through pipe 31 to the body containing receptacle, subjecting the same to heat which, together with the continual circulation causes evaporation of the moisture in the body, the air and gas being discharged through pipe 9 due to suction or draft caused by burner 14, it being understood that valve 8 may be closed if necessary.

If it is not necessary to deodorize or disinfect the discharged air and gases, the valve

11 is placed in the position shown in Fig. 2 so that the discharged air or gases will be drawn into and through the flame of the burner 14, thereby burning the impurities and passing the products of combustion through the heating flues 19, hood 20, and discharge flue 21. Should it be necessary to deodorize or disinfect, the valve 11 is turned to its position opposite that shown in Fig. 2 whereby said discharged air and gases are subjected to the disinfectant or deodorant and then passed through flue 33 to discharge flue 21. Or if chlorin or similar gas has been used, as described, damper 34 is closed and the discharged air and gases pass through outlet 37 to the absorbent fluid.

As stated hereinbefore, my invention is of general adaptability but I have illustrated its use in connection with a mausoleum containing a plurality of burial crypts, a diagrammatic view being shown in Fig. 4, wherein A designates the front wall and B the rear wall of the mausoleum which are spaced from the front and rear walls C and D of each crypt, the side walls E dividing the latter. The apparatus is indicated at F, two positions being shown. In its position in the front of the crypt it is located in the space G between the front slab and the extended sides E of the crypts, being supported as shown in Figs. 1 and 2 by bolts H, which are embedded in the cement when built and may be broken off if desired when the body in that crypt is desiccated. The space G provides room for the extensible or telescoping discharge flue 46 as does the space between the back wall of the crypts and the back wall of the mausoleum proper. The air supply may be from the end of the compartments formed by the spaced walls or may be through registers I in the front wall. The inlet and discharge pipes 31 and 9 pass through openings K in the front wall or slab C of the crypt.

In other applications the inlet or discharge pipes or flues 31 and 9 are connected in proper relation to provide the circulation requisite for proper operation. It is to be noted that the outlet pipe or flue 9 for the discharged air and gases is larger than the inlet pipe or flue 31, and as the discharge chamber 4 is under a draft, suction or partial vacuum due to burner, there will be a continual circulation of air in the crypt at a little less than atmospheric pressure. This, as well as the constant temperature tends to accelerate the desiccation of the body.

It is seen that I have provided in a single compact apparatus means for providing a continuous circulation over a body, of heated dry air and then burning or deodorizing and disinfecting the discharged air or gas, thereby permitting mausoleums to be used in thickly settled communities and the process of desiccation carried on therein without danger, inconvenience or discomfort to the inhabitants.

What I claim is:—

1. In an apparatus of the character described, and in combination, a casing having provided therein an air and gas discharge compartment at the bottom, a combustion compartment thereabove, a moisture extracting and absorbing compartment above said combustion compartment, and a heating compartment above said moisture extracting compartment, said heating compartment having an outlet, said air and gas discharge compartment having an inlet, and said moisture extracting and absorbing compartment having an air supply inlet.

2. In an apparatus of the character described, and in combination, a casing having provided therein an air and gas discharge compartment at the bottom, a combustion compartment thereabove, a moisture extracting and absorbing compartment above said combustion compartment, and a heating compartment above said moisture extracting compartment, said heating compartment having an outlet, said air and gas discharge compartment having an inlet, and said moisture extracting and absorbing compartment having an air supply inlet, said heating compartment being in communication with said moisture extracting and absorbing compartment whereby the air is first dried and then subjected to heat.

3. In an apparatus of the character described, and in combination, a casing having provided therein an air and gas discharge compartment at the bottom, a combustion compartment thereabove, a moisture extracting and absorbing compartment above said combustion compartment, and a heating compartment above said moisture extracting compartment, flues from said combustion chamber passing through said heating chamber, said heating compartment having an outlet, said air and gas discharge compartment having an inlet, and said moisture extracting and absorbing compartment having an air supply inlet.

4. In an apparatus of the character described, and in combination, a casing having provided therein an air and gas discharge compartment, a combustion compartment, a moisture extracting and absorbing compartment, and a heating compartment, flues from said combustion chamber passing through said heating chamber, said heating compartment having an outlet, said air and gas discharge compartment having an inlet, and said moisture extracting and absorbing compartment having an air supply inlet, said heating compartment being in communication with said moisture extracting and absorbing compartment whereby the air is first dried and then subjected to heat.

5. In an apparatus of the character described, and in combination, a casing having provided therein an air and gas discharge compartment, a combustion compartment, a moisture extracting and absorbing compartment, and a heating compartment, said heating compartment having an outlet, said air and gas discharge compartment having an inlet, and said moisture extracting and absorbing compartment having an air supply inlet, and a disinfectant and deodorant compartment.

6. In an apparatus of the character described, and in combination, a casing having provided therein an air and gas discharge compartment, a combustion compartment, a moisture extracting and absorbing compartment, and a heating compartment, said heating compartment having an outlet, said air and gas discharge compartment having an inlet, and said moisture extracting and absorbing compartment having an air supply inlet and a disinfectant and deodorant compartment, and a valved controlled opening between said air and gas discharge compartment and said disinfectant and deodorant compartment.

7. In an apparatus of the character described, and in combination, a casing having provided therein an air and gas discharge compartment, a combustion compartment, a moisture extracting and absorbing compartment, and a heating compartment, said heating compartment having an outlet, said air and gas discharge compartment having an inlet, and said moisture extracting and absorbing compartment having an air supply inlet, said air and gas discharge compartment communicating with said combustion compartment and a disinfectant and deodorant compartment, and a valved controlled opening between said air and gas discharge compartment and said disinfectant and deodorant compartment, whereby said discharged air and gases may be subjected to the heat of said combustion compartment or passed through said disinfectant or deodorant compartment.

8. In an apparatus of the character described, and in combination, a casing having an air and gas discharge compartment in the lower portion thereof communicating with a combustion compartment, a moisture extracting or absorbing compartment having an inlet and located above said combustion compartment, and a heating compartment above said moisture extracting or absorbing compartment and in communication therewith, a hood in said heating compartment, flues connecting said hood with said combustion compartment and passing through said moisture extracting or absorbing compartment, a discharge flue connected with said hood, said heating compartment having an opening to permit the passage of air therethrough and said air or gas discharge compartment having an opening to permit the discharge of air and gas thereinto.

9. In an apparatus of the character described, and in combination, a casing having an air and gas discharge compartment in the lower portion thereof communicating with a combustion compartment, a moisture extracting or absorbing compartment having an inlet and located above said combustion compartment, and a heating compartment above said moisture extracting or absorbing compartment and in communication therewith, a hood in said heating compartment, flues connecting said hood with said combustion compartment and passing through said moisture extracting or absorbing compartment, a discharge flue connected with said hood, said heating compartment having an opening to permit the passage of air therethrough and said air or gas discharge compartment having an opening to permit the discharge of air and gas thereinto, a disinfectant and deodorant compartment adjacent said discharge air and gas compartment and having a valved opening therebetween.

10. In an apparatus of the character described, and in combination, a casing having an air and gas discharge compartment in the lower portion thereof communicating with a combustion compartment, a moisture extracting or absorbing compartment having an inlet and located above said combustion compartment, and a heating compartment above said moisture extracting or absorbing compartment and in communication therewith, a hood in said heating compartment, flues connecting said hood with said combustion compartment and passing through said moisture extracting or absorbing compartment, a discharge flue connected with said hood, said heating compartment having an opening to permit the passage of air therethrough and said air or gas discharge compartment having an opening to permit the discharge of air and gas thereinto, a disinfectant and deodorant compartment adjacent said discharge air and gas compartment and having a valved opening therebetween, a valved flue connecting said disinfectant and deodorant compartment with said discharge flue.

11. In an apparatus of the character described, and in combination, a casing having an air and gas discharge compartment in the lower portion thereof communicating with a combustion compartment, a moisture extracting or absorbing compartment having an inlet and located above said combustion compartment, and a heating compartment above said moisture extracting or absorbing compartment and in communication therewith, a hood in said heating compartment, flues connecting said hood with said combustion compartment and passing

through said moisture extracting or absorbing compartment, a discharge flue connected with said hood, said heating compartment having an opening to permit the passage of air therethrough and said air or gas discharge compartment having an opening to permit the discharge of air and gas thereinto, a disinfectant and deodorant compartment adjacent said discharge air and gas compartment and having a valved opening therebetween, a valved flue connecting said disinfectant and deodorant compartment with said discharge flue, said disinfectant and deodorant compartment having an outlet and means for closing said outlet.

12. In an apparatus of the character described, and in combination, a casing having provided therein an air and gas discharge compartment, a combustion compartment, a moisture extracting and absorbing compartment, and a heating compartment, said heating compartment having an outlet, said air and gas discharge compartment having an inlet, and said moisture extracting and absorbing compartment having an air supply inlet, said inlet into said air and gas discharge compartment being larger than said outlet from said heating compartment.

13. An apparatus of the character described, adapted to be connected to a receptacle including means for extracting moisture from air, means for heating said air, and means for causing a draft or suction to supply heated dry air to said receptacle and to withdraw it therefrom so as to provide a circulation of air therein, said means including a burner, a disinfecting and deodorant compartment and a valve therefor whereby said discharged air and gases may be subjected to the flame of the burner or passed through said disinfectant or deodorant compartment.

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

PERCY W. FOSTER.

Witnesses:

GEORGE T. BEAN,

WILLIAM NOONEN.