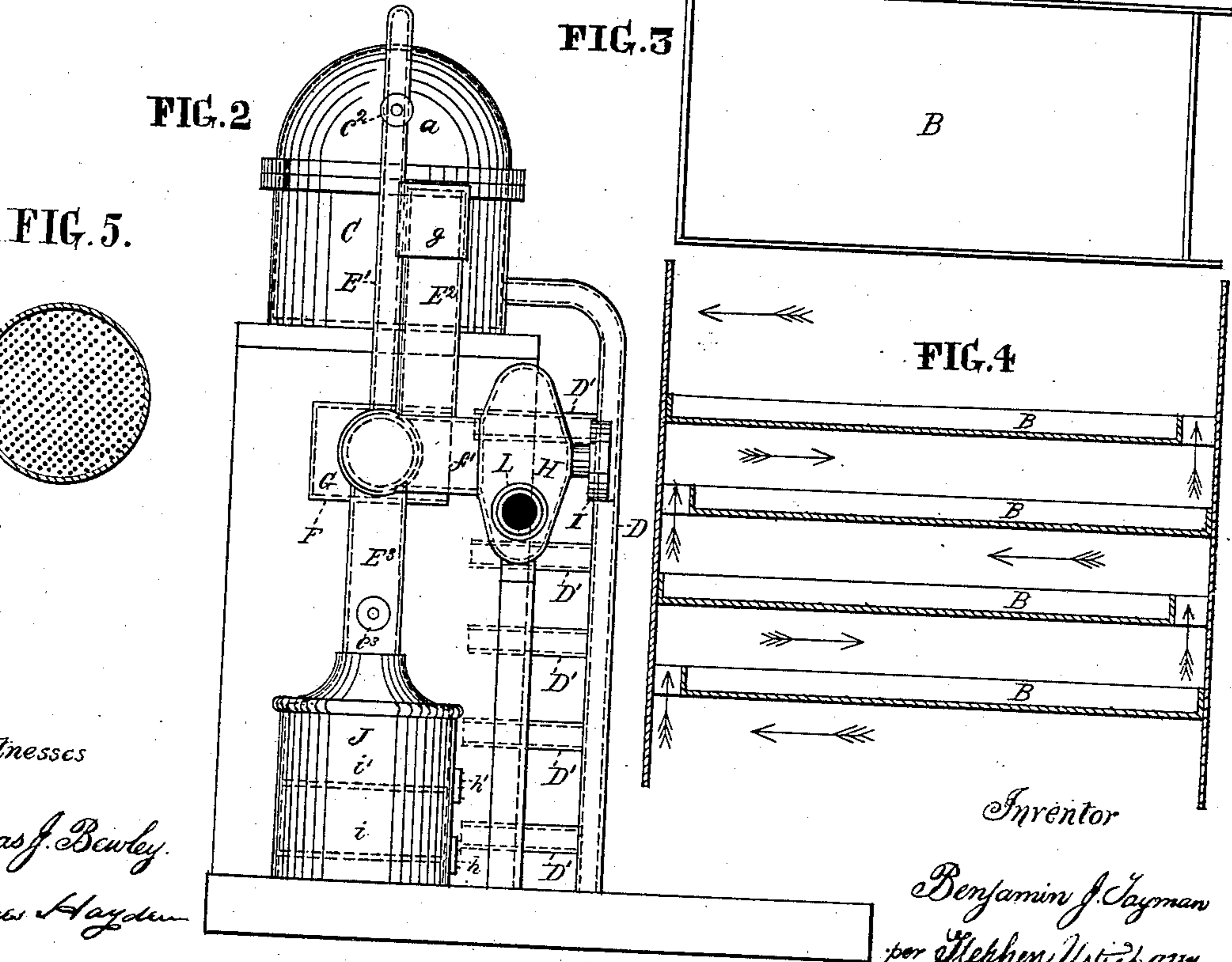
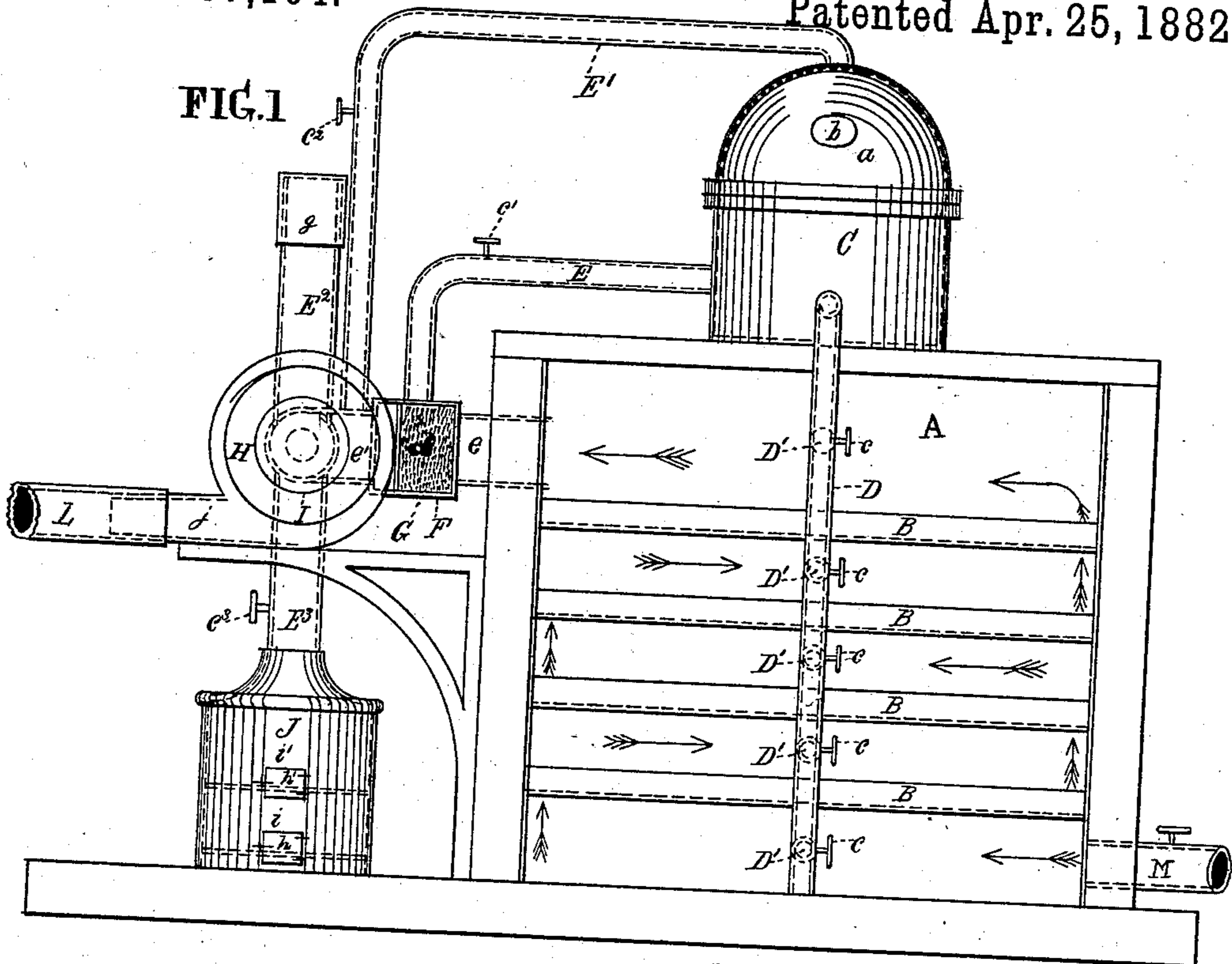


(Model.)

B. J. TAYMAN.
APPARATUS FOR FUMIGATING, DISINFECTING, AND VENTILATING
VESSELS, BUILDINGS, &c.

No. 257,104.

Patented Apr. 25, 1882.



Witnesses

Thomas J. Bewley.
James Hayden

Inventor

Benjamin J. Tayman
per Stephen W. H. H. H.

UNITED STATES PATENT OFFICE.

BENJAMIN J. TAYMAN, OF PHILADELPHIA, PENNSYLVANIA.

APPARATUS FOR FUMIGATING, DISINFECTING, AND VENTILATING VESSELS, BUILDINGS, &c.

SPECIFICATION forming part of Letters Patent No. 257,104, dated April 25, 1882.

Application filed January 5, 1880. Renewed March 29, 1882. (Model.)

To all whom it may concern:

Be it known that I, BENJAMIN J. TAYMAN, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement in Apparatus for Fumigating, Disinfecting, and Ventilating Vessels, Buildings, &c., of which the following is a specification.

The object of my invention is the construction in a compact manner of an apparatus to be used, as occasion may require, for either fumigating, disinfecting, or ventilating vessels, buildings, &c., thus avoiding the necessity of using a separate device for each purpose; and the nature of my invention consists of an apparatus having in combination a chamber provided with a series of trays for holding chemical compounds in a fluid state; a reservoir for supplying the compounds to said chamber, and also for generating fumes; a chemical box provided with a sponge, through which a portion of the chemical compounds is caused to pass; a furnace for generating fumes; an exhaust fan and pipes connected with said chemical chamber, reservoir, chemical box, furnace, and fan, as hereinafter fully described, whereby the apparatus is adapted to be used at pleasure for either fumigating, disinfecting, or ventilating ships, buildings, &c. This apparatus may be made portable on wheels or otherwise, so as to be capable of being readily removed from one vessel to another or from one building to another, as occasion may require.

In the accompanying drawings, which make a part of this specification, Figure 1 is a front elevation of my improved apparatus for fumigating, disinfecting, and ventilating vessels, buildings, &c. Fig. 2 is an end elevation of the same. Fig. 3 is a top view of one of the trays B detached from the chemical chamber A. Fig. 4 is a vertical section of the series of trays B in connection with the end linings of the chamber A. Fig. 5 is a horizontal section of the furnace J, taken above the perforated bottom of the upper chamber, *i'*.

Like letters of reference in all the figures indicate the same parts.

A represents a chamber provided with a series of trays, B, for holding disinfecting chemi-

cal compounds in a liquid state. The front plate of the chamber is left off for the purpose of showing the interior arrangement.

C is a chemical reservoir on the top of the chamber A. It is provided with a dome, *a*, which has a hand-hole, *b*, for the passage of chemicals into the reservoir.

D is a vertical pipe leading from the reservoir, having branch pipes D' for conducting the fluid chemical compound into the trays B. The branch pipes are provided with stop-cocks *c* for regulating the supply of the compound to the trays.

E is a pipe connected at one end to the lower part of said reservoir C and at its other end to the box F, which contains the wire cage G, having a sponge, *d*. This pipe is provided with a stop-cock, *e'*. The box is connected at one end to the chamber A by means of the short pipe *e*, and at its other end by means of the collar *e'*, to the inlet *f'* of the exhaust-fan H, which is provided with a pulley, I, for connecting it with a motor. The front plate of the box is removed for the purpose of showing the wire cage and sponge.

E' is a pipe, which leads from the dome *a* of the reservoir C to the inlet *f'* of the fan. It is provided with a stop-cock, *c'*.

E² is a vertical cold-air-supply pipe, provided with a cap, *g*. It is connected with the inlet *f'* of the fan in close proximity to the latter, and in practice extends out of the vessel or building.

J is a furnace, which is connected by means of the vertical pipe E³ with the fan-inlet *f* between the pipe E' and the cold-air-supply pipe E². This pipe E³ is provided with a damper, *c'*. The furnace is provided with doors *h* and *h'*, which respectively open into the lower and upper chambers, *i* and *i'*. The bottom of the lower chamber, *i*, is solid, upon which is placed charcoal or other fuel for generating carbonic-acid gas, and for generating fumes from sulphur, camphor, or equivalent material, which is placed on the perforated bottom of the upper chamber, so that the heat from the lower chamber may pass through it for that purpose. The carbonic-acid gas and the sulphurous-acid gas mix together and unite with the chlorine gas generated in the reservoir C.

L is a hose, which leads from the outlet *j* of the fan H to any part of the vessel or building to be operated upon.

The operation is as follows: When the vessel or building is to be fumigated and the use of chlorine gas is required the materials for generating it are placed in the reservoir C and all the stop-cocks and dampers are closed, with the exception of the stop-cock *c*² of the pipe E'. The fan H is then put in motion, whereby the chlorine gas is drawn through the pipe E' from the dome *a* of the reservoir and passed through the hose L and discharged into the infected part or parts of the vessel or building. When the fumes of sulphur, charcoal, camphor, or other equivalent substances are to be used the furnace J is supplied with the material or materials above mentioned and the dampers and stop-cocks closed, with the exception of the furnace-damper, and the fan H put in motion, whereby the fumes generated in upper chamber, *i*', are passed through the fan and discharged by means of the hose L in the same manner as the chlorine gas, as above stated; and, if desired, the chlorine gas and the sulphurous-acid gas may be used both together by opening the cock of the pipe E' leading from the dome *a* to the fan, whereby these two gases will unite and be forced through the hose into the infected parts. When hot air is to be used an iron pipe is substituted in place of the hose.

For the exhaustion of foul air for disinfecting the pipe E', leading from the dome *a* of the chemical reservoir C to the inlet *e* of the fan H, the cold-air-supply pipe E² and the furnace-pipe E³ are closed, and the pipe E, leading from the lower part of the reservoir C to the chemical-box F, is left partially open to admit of a spray of chemical liquid from the reservoir C upon the sponge *d* in the box. The trays B are filled with chemicals and the cocks *c* of the branch pipes D' opened. The hose L is then removed from the fan and connected with the short pipe M of the opposite end of the chamber A. The fan is then put in motion, whereby a spray of chemical liquid from the reservoir C is drawn through the pipe E and discharged upon the sponge *d* to wet it, and the running of the fan being continued, the foul air is drawn through the chemical-chamber A, between the trays B, as indicated by the arrows, and thence through the sponge and discharged from the fan into the open air through the pipe E²; or the air in the vessel or building may be disinfected by returning the hose from the pipe M and drawing pure air through the chemicals in the chemical-chamber A and passing it through the fan and

discharging it through the hose into the vessel or building.

For ventilation all the stop-cocks and dampers are closed, and the cap *g* is removed from the cold-air-supply pipe E², and cold air is drawn through the pipe and discharged through the hose L into the vessel or building.

When the apparatus is to be used for destroying offensive odors emitted from bone-boiling, fat-rendering, or like operations, and the smoke-stack or chimney has a good draft, the exhaust-fan can be dispensed with. In this case the chemical-chamber and its reservoir will be connected with the chimney by means of the short pipe *e*. The draft from the chimney will draw the air through the chamber in the direction indicated by the arrows, whereby it will be impregnated with the liquid contained in the trays and drawn into the chimney and mixed with the vapors or fumes from the kettles or furnace in its outward passage, whereby the offensive odors will be destroyed.

I do not confine myself to the use of any compound or mixture, as I have found by experience that any chemical, however powerful, that may be reduced to a liquid state for this purpose can be used.

I claim as my invention—

1. The combination of the furnace J, having a lower chamber, *i*, for containing charcoal or other fuel, and an upper chamber, *i*', having a perforated bottom for containing sulphur or equivalent material, with the chemical-reservoir C and connecting-pipes E', and the fan H, having a hose, L, for fumigating vessels, buildings, &c., with chlorine gas, sulphurous-acid gas, and carbonic-acid gas, substantially as set forth.

2. The chemical-chamber A, having trays B and pipe M, in combination with the chemical-reservoir C, and pipes D and D' communicating therewith, and a chimney connected with the short pipe *e* of the chamber, for destroying offensive odors emitted in fat-rendering, &c., substantially as set forth.

3. The combination of the fan H with the chemical-reservoir C, pipe E, chemical-box F, having a cage, G, provided with a sponge, *d*, pipe D, having branch pipes D', and the chemical-chamber A, having trays B, and short pipe M, provided with a hose, for disinfecting vessels, buildings, &c., by the use of chemicals, substantially as set forth.

BENJ. J. TAYMAN.

Witnesses:

THOMAS J. BEWLEY,
STEPHEN USTICK.