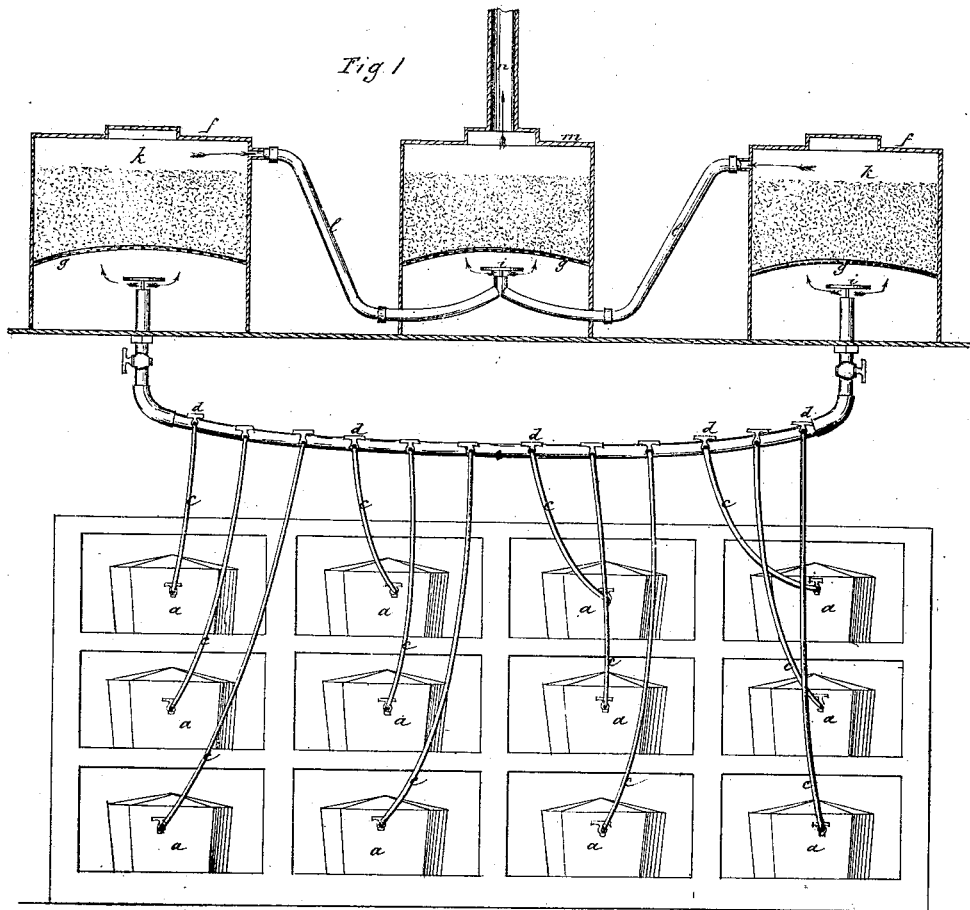


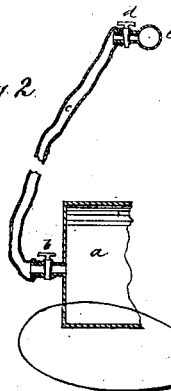
No. 111,358.

PATENTED JAN. 31, 1871.

B. F. LYFORD.  
DISINFECTING AND VENTILATING BURIAL VAULT.



*Fig 2.*



Witnesses:

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# United States Patent Office.

BENJAMIN F. LYFORD, OF SAN FRANCISCO, CALIFORNIA.

Letters Patent No. 111,358, dated January 31, 1871.

## IMPROVEMENT IN DISINFECTING AND VENTILATING BURIAL VAULTS.

The Schedule referred to in these Letters Patent and making part of the same.

*To all whom it may concern:*

Be it known that I, DR. BENJAMIN F. LYFORD, of the city and county of San Francisco and State of California, have invented a new and Improved Process of Ventilating and Disinfecting Charnel Vaults; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing forming a part of this specification, in which—

The Figure is a sectional elevation.

One of the greatest nuisances to which charnel vaults are subject is the presence in them of the noxious gases that exhale from the decomposition of the corpses deposited therein, and that escape from the caskets wherein such corpses are placed. These gases are extremely deleterious to human constitutions, always exerting a baneful effect upon those who enter the vault, and sometimes even rendering them insensible.

Nor is the injury from this cause confined to the limits of vaults, inasmuch as the gases escape out of the latter and poison the surrounding atmosphere, producing much mischief especially where cemeteries are located within the city limits, as they often are, so that the removal of this nuisance is a positive hygienic necessity.

The object of my invention is to provide a direct means of communication between each coffin or casket stored in a charnel vault and the external air, in order that the gases that proceed from corpses may be conducted outside the vault without being able in any manner to diffuse themselves through its interior; and also to provide a means for thoroughly disinfecting such gases during their passage from the casket in order that when they issue into the external atmosphere they may be divested of every particle of noxious matter. And I here state that I do not intend to limit myself to the devices hereinafter described for accomplishing this object, but reserve the right to employ any and all such mechanisms as may constitute the mechanical equivalents thereof.

Referring to the drawing, where is shown a vault of ordinary construction, and divided into separate compartments for the reception of caskets containing corpses—

*a*, are the caskets, each of which is fitted with a stop-cock, *b*, opening into its interior.

*c*, are flexible pipes, that connect the cocks *b* with cocks *d*, that open into a pipe, *e*, placed in any convenient position with reference to the caskets; said pipe being, preferably, inclined upward from its middle toward each end, and being suitably connected at its extremities with vessels *f*, placed above it and held in position by any sufficient means; the

said pipe, preferably, passing through the bottom of each vessel *f* and extending upward a little way within it.

The office of the pipe *e* is to conduct into the vessels *f* the gases discharged into it from the several caskets through the flexible tubes *c*.

The vessels *f* are furnished with diaphragms *g*, consisting of perforated plates or strong wire-gauze which extend across the vessels above the mouths of the pipe *e*, and are, preferably, concave on their lower and convex on their upper sides.

Upon and covering the whole upper surface of each diaphragm is spread a piece of felt or other strong and porous material, and above the felt is located a suitable quantity of some such chemical compound as will serve to disinfect the gases poured into the vessel by the pipe *e*.

The perforations and pores of the diaphragms and felt allow the gases to rise freely through them so as to percolate among the particles of the compound, and the office of the felt is to prevent the chemicals from falling downward through the diaphragms.

Horizontal disks *i* are supported or suspended above the mouths of the pipe *e* for the purpose of deflecting the gases as they pour out from the pipe beneath the disks.

Each vessel, *f*, should have a space, *k*, above its quantum of chemicals into which the gases, now completely disinfected, may rise. But the gases in the spaces *k* though divested of all the noxious matters derived from the corpses, are charged with chemical molecules, absorbed during their percolation through the disinfecting material.

To force the gases from such chemical molecules they are conducted through pipes *l* into the lower part of a vessel, *m*, wherein the pipes *l* curve upward and meet at a common point of discharge, likewise furnished with a deflecting disk, *i*.

The vessel *m* is also provided with a perforated diaphragm and a superincumbent felt, above which latter is located a suitable quantity of some such compound as may serve to free the gases, during their ascent through it, of the molecules received in the vessels *f*.

The vessel *m* is provided with a vertical discharge-pipe, *n*, of sufficient height to create a strong draft from the caskets upward and discharge into the external atmosphere entirely purified the gases that are generated in the corpses beneath.

The stop-cocks *b* and *d* are provided, to enable fractures in the pipes *c* to be repaired without the discharge into the vault of gas, either from the caskets or pipe *e*.

The compound that is placed in the vessels *f* is carbolate of lime, and that in the vessel *m* is perman-

ganate of potassium pulverized, to which add an equal quantity of pulverized calcined bone. This is to prevent deliquescence.

These are only two out of many compounds that may be used, and are recommended for their cheapness and efficiency.

Having thus described my invention,

What I claim as new, and desire to secure by Letters Patent, is—

The process herein described of ventilating and disinfecting charnel vaults.

Witnesses: B. F. LYFORD, M. D.

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GEO. E. BROWN.