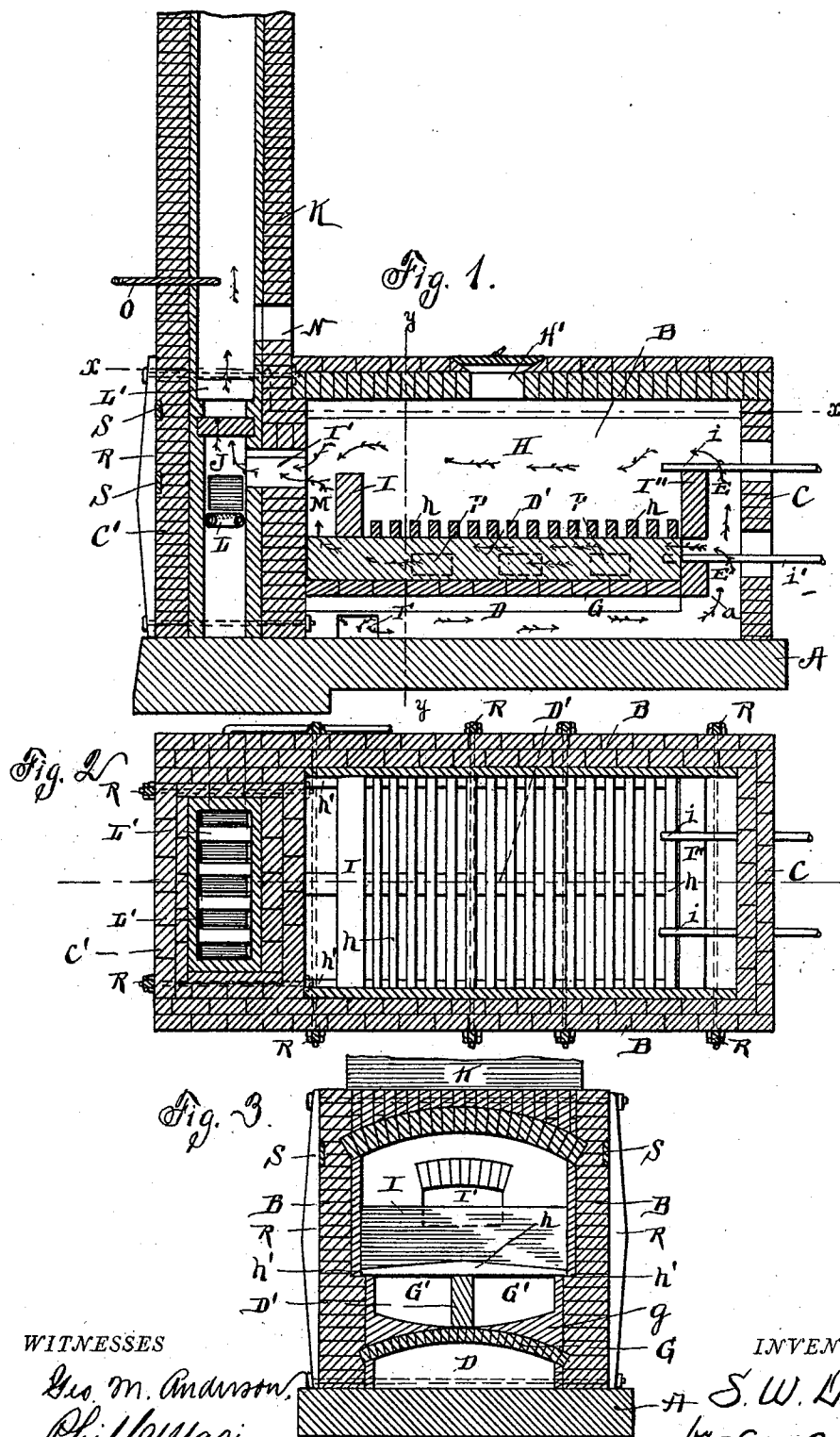


S. W. DIXON.
CREMATION FURNACE.

No. 517,816.

Patented Apr. 3, 1894.



WITNESSES

Geo. M. Anderson.
Phillips.

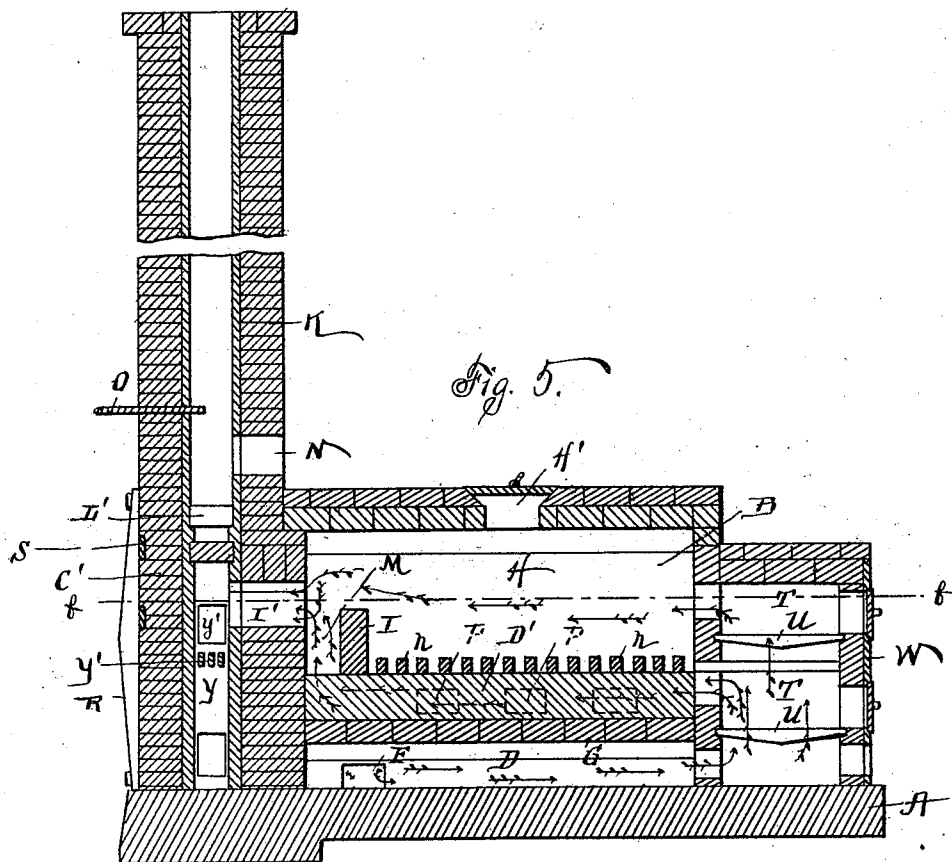
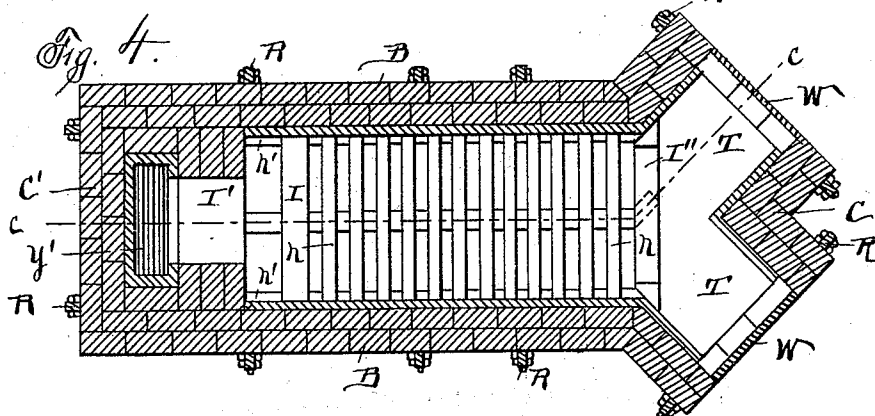
INVENTOR

S. W. Dixon
by E. W. Anderson
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UNITED STATES PATENT OFFICE.

SAMUEL W. DIXON, OF FINDLAY, OHIO, ASSIGNOR TO THE DIXON SANITARY CREMATORY COMPANY, OF SAME PLACE.

CREMATION-FURNACE.

SPECIFICATION forming part of Letters Patent No. 517,816, dated April 3, 1894.

Application filed October 7, 1893. Serial No. 487,439. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL W. DIXON, a citizen of the United States, and a resident of Findlay, in the county of Hancock and State of Ohio, have invented certain new and useful Improvements in Cremation-Furnaces; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

Figure 1 of the drawings is a longitudinal section of the invention. Fig. 2 is a section on the line *x x*. Fig. 1. Fig. 3 is a section on line *y y* Fig. 1. Fig. 4 is a horizontal section showing modification and Fig. 5 is a longitudinal vertical section of same.

This invention has relation to certain new and useful improvements in cremation furnaces for the combustion and incineration of dead bodies, night-soil, garbage, and other similar refuse; and it consists in the novel construction and combination of parts all as hereinafter described and pointed out in the appended claims.

The invention is particularly designed as an improvement upon the furnace for which Letters Patent No. 461,327 were granted me October 13, 1891, and it consists more especially in the means employed for securing a more perfect combustion and deodorization or the gases and products of combustion as they pass from the combustion chamber proper to the stack; in the provision and arrangement of an evaporating chamber in connection with the combustion chamber, and in other features of construction and combination of accessory parts, all as will hereinafter appear.

In the accompanying drawings, the letter A designates the base or bed of the furnace, B, B the side walls thereof, and C, C' the front and rear end walls, respectively. Above the bed or base A, is a longitudinal flue or passage D, leading to the fire boxes E, E which it enters at *a*.

F, F are doors or openings through the side

walls B, near the rear or stack end of the furnace, and which supply the flue D with cold air. The upper wall of the flue D consists of an arch G, which supports the concave floor *g* of an evaporating chamber G'.

H designates the combustion chamber proper in which is deposited the garbage, or other matter to be treated, through a man-hole H' in the crown. The floor of the chamber H which separates said chamber from the evaporating chamber G', consists of a series of transverse bars *h*, preferably of railroad, or cast iron, although fire clay may be employed.

In Figs. 1, 2, and 3, I have shown the furnace constructed especially with relation to the use of natural gas as a fuel, the fire boxes E, E having each a burner or series of burners *i* arranged to project the flames into the combustion chamber H, and others *i'* arranged to carry the flames into the evaporating chamber G'. The bars *h* are supported upon shoulders *h'* of the side walls B, B, and also upon a central wall D'.

At the rear end of the chamber H is a transverse, vertical retaining wall I, between the upper edge of which and the crown is an opening or passage through which the smoke and gases from said chamber enter through an opening I' in the end or stack wall of said chamber a deodorizing and second combustion chamber J, situated in the lower portion of the stack K. The front end of the chamber H also has a retaining wall I'', above which are the burners *i*.

L designates the burner for the combustion and deodorizing chamber J. Above said burner in the stack passage are situated a series of horizontal bricks L' of fire clay, or other material which can be raised to a white heat by the burner L, said bricks being arranged to leave irregular openings or passages between them.

M is a passage, between the retaining wall I and the end wall of the chambers H and G', through which the vaporous or gaseous products from the evaporation chamber pass, with the products from the chamber H, to the chamber J.

N designates a door to the stack, and O is a damper situated above the bricks L'.

P, P, &c., are doors in the side walls permitting access to the evaporation chamber for the removal of ashes.

R designates a series of stays which support the vertical walls of the furnace, and S, S are iron heel plates which support the heel of the arch or crown. The furnace is lined throughout with fire-clay.

Figs. 4 and 5, illustrate a modification of the furnace designed with reference to the use of coal, or other solid material for fuel. In this form the furnace is provided at the front with the offset fire boxes T, T having grates U, U, and the usual fronts W, W. A furnace Y takes the place of the burner L, said furnace having a grate Y', and doors y'. In other respects the construction is the same as in the furnace designed for the use of gas as a fuel, the fire boxes w, w, taking the place of the boxes E, E.

The operation is as follows:—The fires being lighted, cold air is drawn in through the lower flue D, and coming in contact with the heated floor of the evaporation chamber, becomes heated to a high degree before reaching the fire boxes or burners, and greatly increases the combustion, passing with the flames through the chambers H and G'. The liquid parts of the matter placed in the chamber H fall through the bars h onto the concave bottom of the chamber G' where they are retained until thoroughly evaporated, while the flames passing both above and below the solid matter render its destruction rapid and complete. The smoke, gases, and vapors from both chambers pass into the chamber J and thence to the stack, coming in contact with the fire, and the highly heated bricks L', which completes the destruction of the combustible elements, the non-combustible gases passing up and out of the stack free from odor.

I have heretofore found it difficult to maintain a fire in the chamber J, owing to the strong draft in the stack. This difficulty is obviated in the present construction by means of the retaining wall I, which compels all vapors, gases and smoke from the chambers G' and H, to pass up and between said wall, and the stack wall, enabling me to place the deodorizing fire below the draft in the stack. The concave bottom of the evaporation chamber holds the liquid parts thereon, and pre-

vents them from leaking to other parts of the furnace.

The admission of cold air to the flue D is controlled by the doors at F, F.

The flue D may be divided longitudinally if desired.

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

1. In a cremation furnace, the combination with the outer walls of the furnace, of a longitudinal grate dividing the body of the furnace into two chambers H and G', one above the other, a transverse vertical retaining wall at the rear of the chamber H, and so disposed as to form a vertical passage between it and the stack wall, said passage communicating with the said chamber G', the stack wall having a combustion chamber J in its lower portion below the said passage through the stack wall, a series of bricks or bars of refractory material in the said chamber J, said bars or bricks having passages between them, and furnaces or fire boxes at the opposite end portion of the furnaces arranged to project their flames into said chambers H and G' substantially as specified.

2. In a cremation furnace, the combination of the arch G having between it and the bed of the furnace a longitudinal cold air flue D, said arch also supporting the floor of an evaporating chamber G', the fire boxes E, E, at one end and to which said flue leads, a series of grate bars over said chamber G', and forming the floor of a combustion chamber H, said fire boxes having grates or burners for each of the chambers G' and H, and arranged to project their flames therein, the retaining walls I and I' at the respective ends of said chamber H, the stack wall separated from the retaining wall I by a vertical passage M communicating with the said chamber G', the stack wall having the opening there-through, the stack having a combustion chamber in its lower portion, a grate or burner in said chamber below the said opening in the stack wall, and the refractory bricks or blocks in the stack above said opening, substantially as specified.

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

SAMUEL W. DIXON.

Witnesses:

E. D. NICKERSON,
C. E. PHILLIPS.