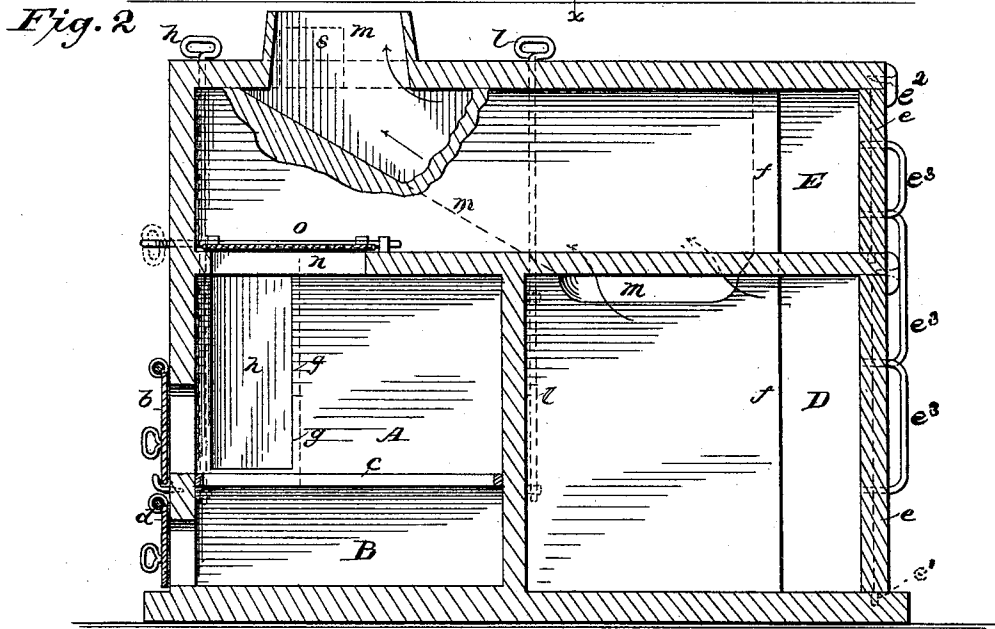
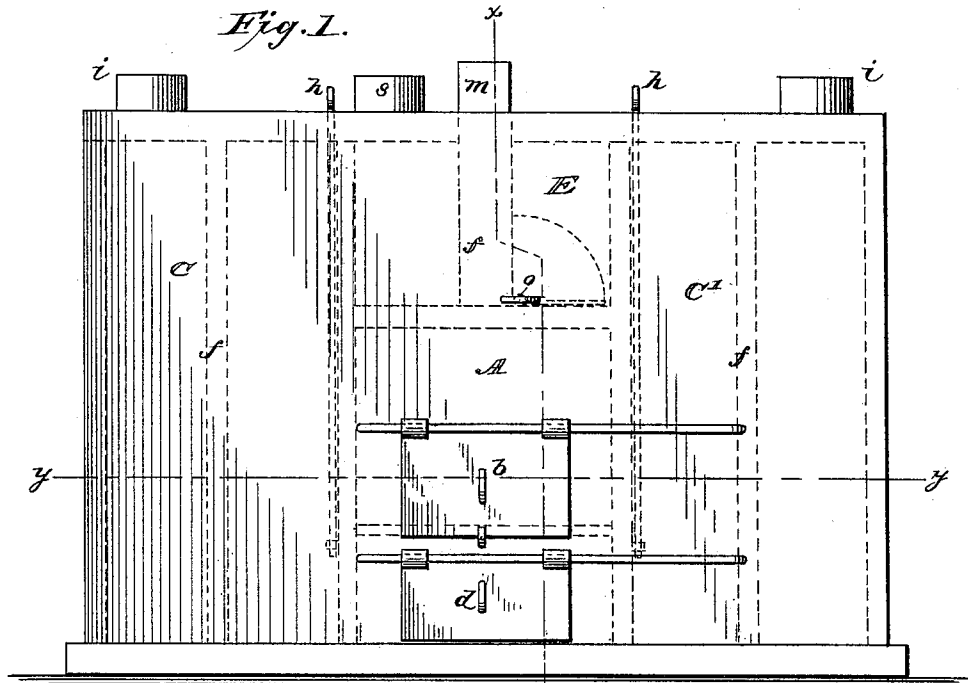


W. A. WHITE.

FURNACE FOR HOT HOUSES, &c.

No. 371,397.

Patented Oct. 11, 1887.



WITNESSES:

George Pinkerbaugh
C. Sedgwick

INVENTOR:

W. A. White

BY

Munn & Co

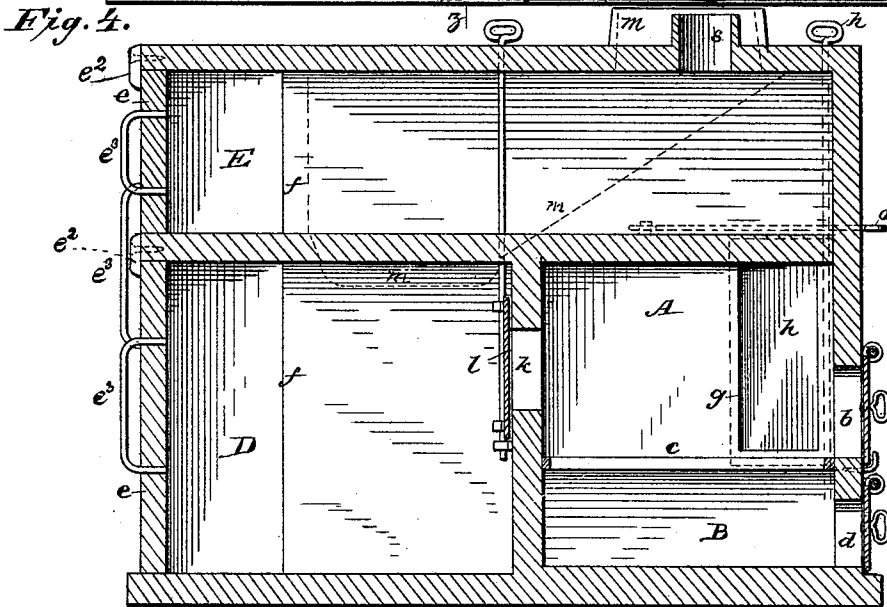
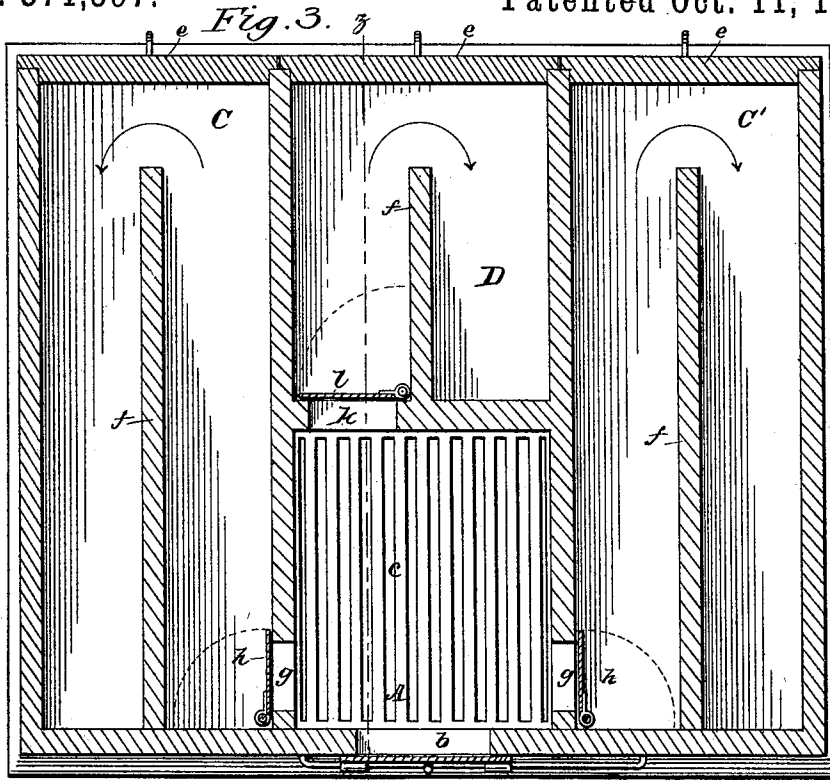
ATTORNEYS.

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UNITED STATES PATENT OFFICE.

WILLIAM A. WHITE, OF STAATSBURG, NEW YORK.

FURNACE FOR HOT-HOUSES, &c.

SPECIFICATION forming part of Letters Patent No. 371,397, dated October 11, 1887.

Application filed December 18, 1886. Serial No. 231,945. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM A. WHITE, of Staatsburg, in the county of Dutchess and State of New York, have invented a new and useful Improvement in Furnaces for Hot-Houses, Greenhouses, and other like Structures, of which the following is a full, clear, and exact description.

This invention relates to furnaces for heating water, air, or other fluid for circulation through pipes in hot houses.

Many disadvantages attend the use of the ordinary hot-water boilers for the above purpose, for the reason that the hot water naturally flows to the highest point, which, in the case of propagating and other like houses that require both top and bottom heat, is not what is required. Thus the water from one boiler cannot be taken to different elevations and equalize the temperature in or throughout such varying altitudes as required in the house. The boilers in ordinary use, too, are liable to crack and give out, especially in extreme cold weather, thus causing all the plants in the house to freeze and often financially ruining florists and nurserymen.

The invention therefore consists of the combinations of parts, including their construction, substantially as hereinafter set forth, and pointed out in the claim.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 represents a front elevation of a furnace embodying my invention. Fig. 2 is a partly-broken section of the same upon the line $x x$ in Fig. 1. Fig. 3 is a horizontal section thereof upon the line $y y$ in Fig. 1; and Fig. 4 is a vertical section upon the line $z z$ in Fig. 3.

The furnace, which may be built of brick and iron, or all of iron, if desired, is provided with a fire-place of sufficient capacity to heat to the required degree a series of separate compartments for separately or collectively conveying the heat as required by the usual or any suitable means to different parts or elevations of the building. A indicates said fire-place; b , its door; c , its grate-bars; B, the ash-pit, and d its door.

C C' are upright heating-compartments arranged upon opposite sides of the fire-place and extending from top to bottom of the furnace. D is a heating-compartment in rear of the fire-place, and E a horizontal heating-compartment arranged over the fire-place and extending from front to back of the furnace. All of these compartments may be fitted with lids or doors e at back of the furnace to give access to them, which doors are held in position by a dowel pin or projection, e' , at one side edge and a button, e'' , at the opposite side edge, and which are provided with handles e^3 . Each of said compartments is constructed or fitted with a central circulating diaphragm or partition, f , extending partly up or along it, adapted to give a return action or course to the products of combustion passing through the compartment.

Upon opposite sides of the fire-place A are passages $g g$, controlled by independent dampers $h h$, for passing the products of combustion to either or both of the compartments C C', which products, after they have circulated through said compartments, are permitted to escape through independent draft pipes or flues $i i$. Upon closing the dampers $h h$ communication with the fire-place A is shut off. A passage, k , in the back of the fire-place, controlled by a damper, l , serves, when said damper is opened, to pass the products of combustion to and through the compartment D, and from thence out through an independent draft pipe or flue, m , which is extended down through the circulating-partition f in said compartment and opens upon the one side of it, as shown in Figs. 2 and 4. In the top of the fire-place A is another passage, n , controlled by a damper, o , that, when opened, passes the products of combustion from the fire-place to and through the upper horizontal compartment, E, which is provided with a separate draft-pipe or escape-flue, s .

The draft pipes or flues $i m s$ are all designed to connect with a common chimney (not shown here) outside the furnace, and should each be fitted with an independent damper to regulate the draft. Thus it will be seen that one, two, or any number of the separate heating-compartments having independent draft-flues can be used with the same fire. This makes the

furnace absolutely reliable and safe at all times, and repairing can be done at any time without taking out or drawing the fire. The general draft on the fire is regulated by opening and closing the fire-place and ash-pit doors. By the separate heating compartments having separate draft-flues the heat can be conveyed and controlled to different parts of the building or to different elevations therein and the required heat at any one point or place be readily maintained and an equal heat, if desired, be kept up both at top and bottom and other parts of the building.

The fire-walls of the furnace may be built of either brick or iron.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent--

In furnaces for heating hot-houses, green-houses, and other like structures, the combination of the fire-place A, the separate heating-compartments C C' D E, having circulating-partitions *f*, and in communication with the fire-place at different parts thereof by independent passages *g g k n*, the independent dampers *h h l o*, controlling said passages, and the independent draft pipes or flues *i i m s*, essentially as shown and described, and for the purposes herein set forth.

WILLIAM A. WHITE.

Witnesses:

WILLIAM C. JONES,
EDWIN SMITH.