

S. E. Chubbuck.

Steam Heater

Nº 100,013.

Patented Feb. 22, 1870.

Fig. 1

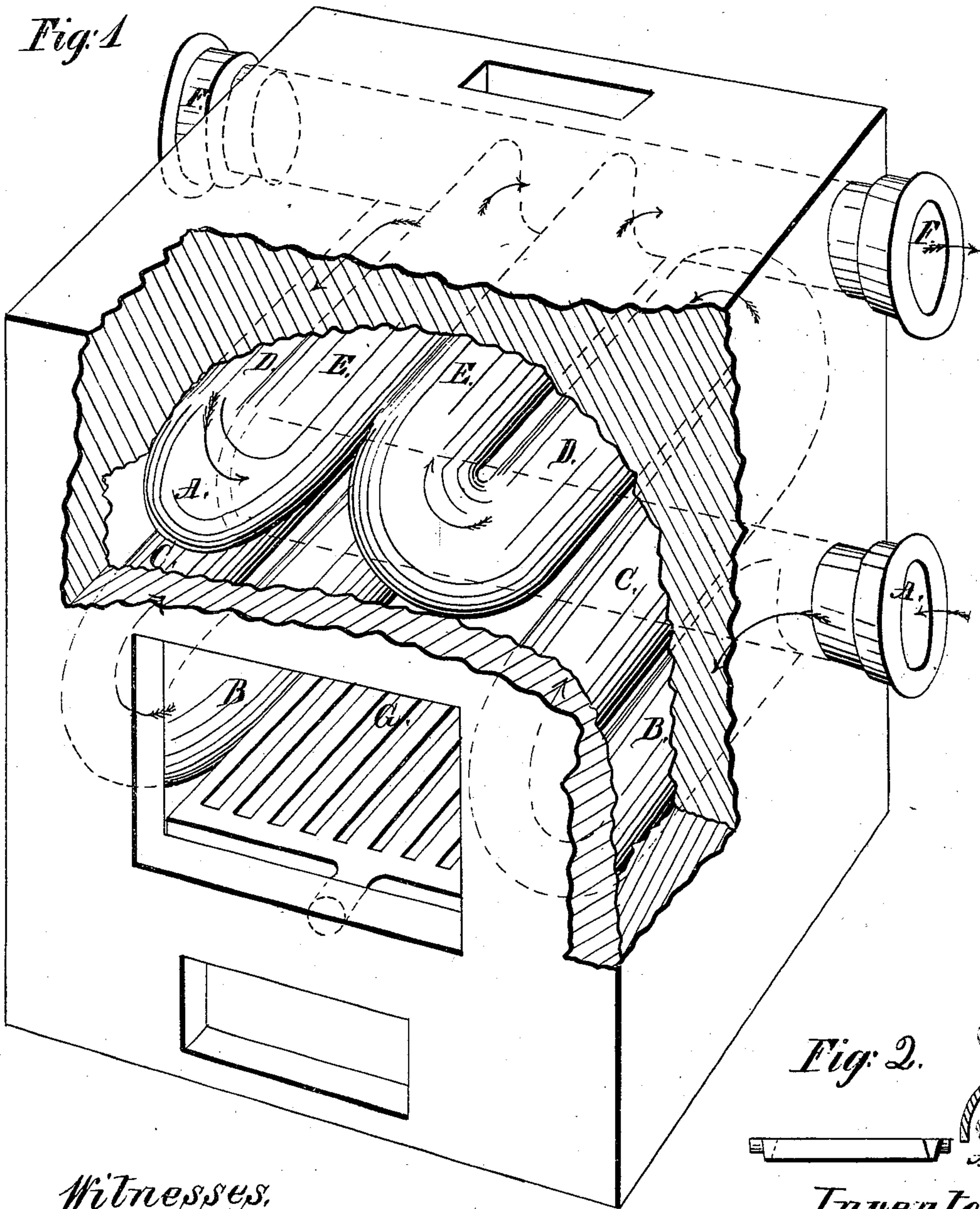
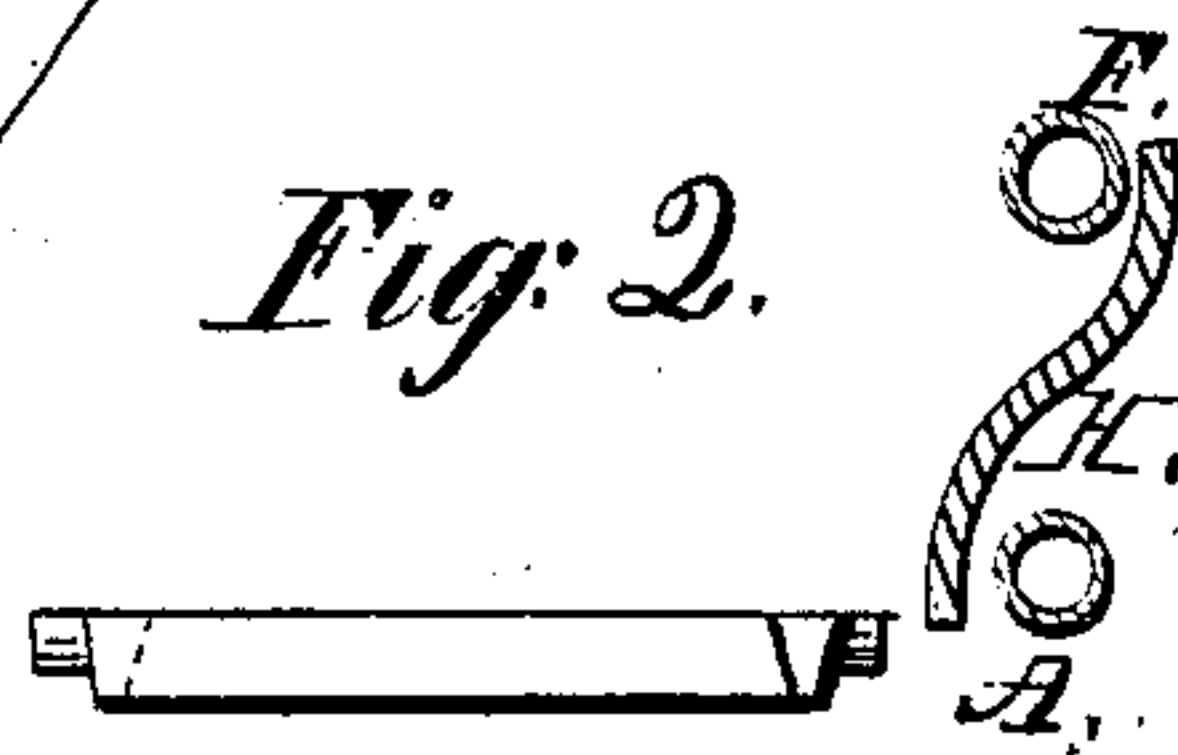


Fig. 2.



Inventor,

S. E. Chubbuck.

Witnesses,

*L. V. Coffin Jr.
J. D. Spaulding*

United States Patent Office.

S. E. CHUBBUCK, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO HIMSELF,
ISAAC Y. CHUBBUCK, AND S. E. CHUBBUCK, JR., OF SAME PLACE.

Letters Patent No. 100,013, dated February 22, 1870.

WATER-HEATER FOR GREEN-HOUSES.

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

I, S. E. CHUBBUCK, of Boston, in the county of Suffolk, and State of Massachusetts, have invented certain Improvements in Water-Heating Circulators for Warming Green-Houses and other Apartments, of which the following is a specification.

Nature and Objects of the Invention.

The nature of my invention relates to the particular arrangement of the heating and circulating pipes, the object thereof being to secure an unobstructed, free, and positive circulation of the water, together with an advantageous arrangement of the pipes relative to and within the fire-chamber.

Figure 1 of the drawing is a perspective view illustrative of the invention, in which a part of the masonry is broken away.

Figure 2 is a sectional view, showing the fire back or guard H, &c.

A is the cold water or induction-pipe, which lies across the rear of the fire-chamber.

The water may be admitted at either or at both ends A A of this pipe. The arrows indicate it as admitted at the right of the drawing.

From pipe A pipes B are extended forward, one at each side of the fire-chamber, above or partly above the level of the grate.

A return-pipe, C, is located over each of the pipes B, and connected therewith at the front.

At the rear these pipes C return in like manner by connection with pipes D still above them, and these again at the front return into the pipes E, which, extending to the rear, again connect with another transverse pipe, F, at the top of the rear part of the fire-chamber.

The pipe F is the eduction or hot-water pipe, which may be extended by connections from either or both its ends in any direction or to any required distance, discharging or returning again by connecting pipes to the cold-water pipe A.

The arrows indicate the water as discharging to the right of the drawing.

The systems of pipes B B, C C, D D, and E E are arranged longitudinally with reference to the fire-chamber G, each being elevated somewhat above the other from pipe B upward, the pairs C C, D D, and E E being each pair arranged nearer to each other as they are located higher one than the other, the system completing or approximating to the form of an arch over the grate within the fire-chamber.

Where small capacity is required, the system of pipes may be abbreviated and the pipes C C may return from the rear into a single central pipe made to extend forward and join to the pipe F F, which, in such a case, should be located for the purpose at the front instead of the rear, or the pipes D D may connect with pipe F at the front, or they may return at the front into a single pipe, as E, leading to pipe F.

The system of pipes should be inclosed in the fire-chamber, except the pipe A and the protruding ends of pipe F.

The pipe A may be partially protected from the heat by means of a fire-back or shield H, (see fig. 2.)

The described arrangement subjects the upper pipes to the more direct and intense heat, while all except pipe A A are surrounded with the heated contents of the fire-chamber.

The water in the upper pipes naturally, under the arrangement, becomes warmed first, and as naturally rises in the pipes from one to the next, giving place to the inflowing cold water from the pipe A at the bottom.

As the passage through the pipes from pipe A to pipe F is constantly upward, and the pipes, by their arrangement, become more and more heated during the ascent, the circulation receives no confusion from counter or uncertain currents, but immediately becomes positive and regular on lighting the fire, and may be continued indefinitely.

The pipes may be made of cast-iron or other material, and the parts united with bolts and flanges in the usual manner.

Other material, however, as well as other well-known methods of uniting the parts may be used.

The fire-chamber may be constructed of brick or other material.

Claim.

I claim the arrangement, in an arched series rising and converging in longitudinal alternations from front to rear and rear to front, of a continuous pipe at either side of the fire-chamber, substantially as described and shown for the purposes set forth.

S. E. CHUBBUCK.

Witnesses:

D. N. B. COFFIN, Jr.,
J. D. SPAULDING.