S. SMITH.

Heating Stove.

No. 63,956. Patented April 16, 1867.

Fig. 3

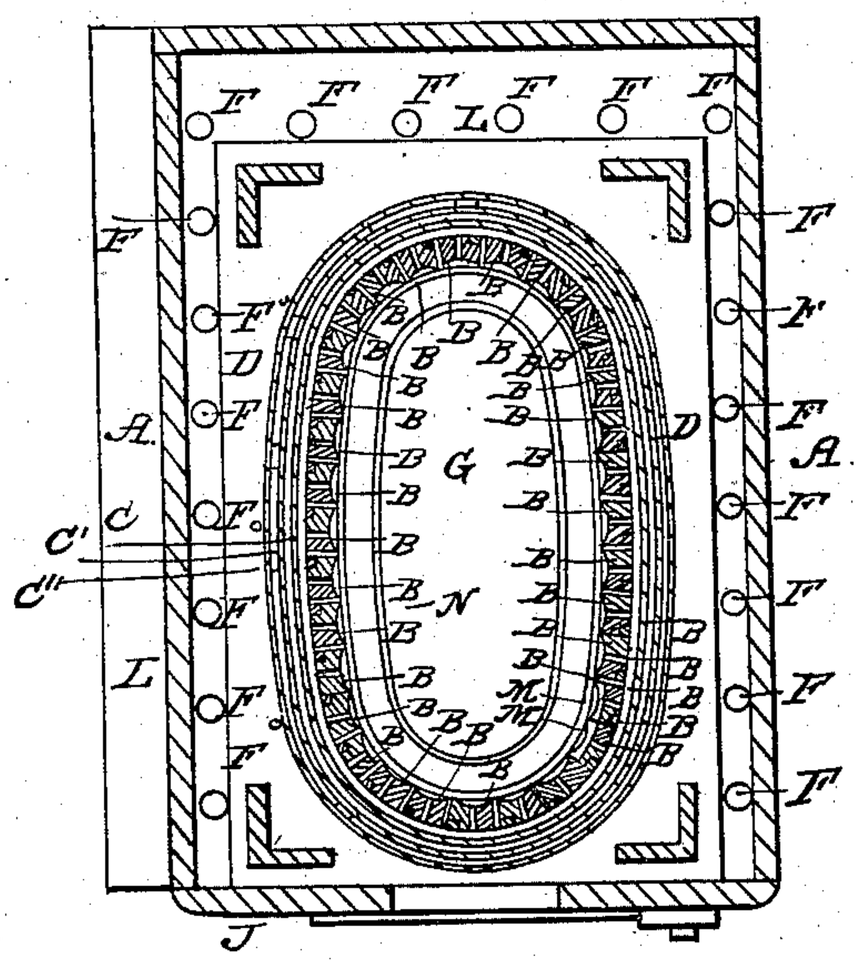


Fig. 2

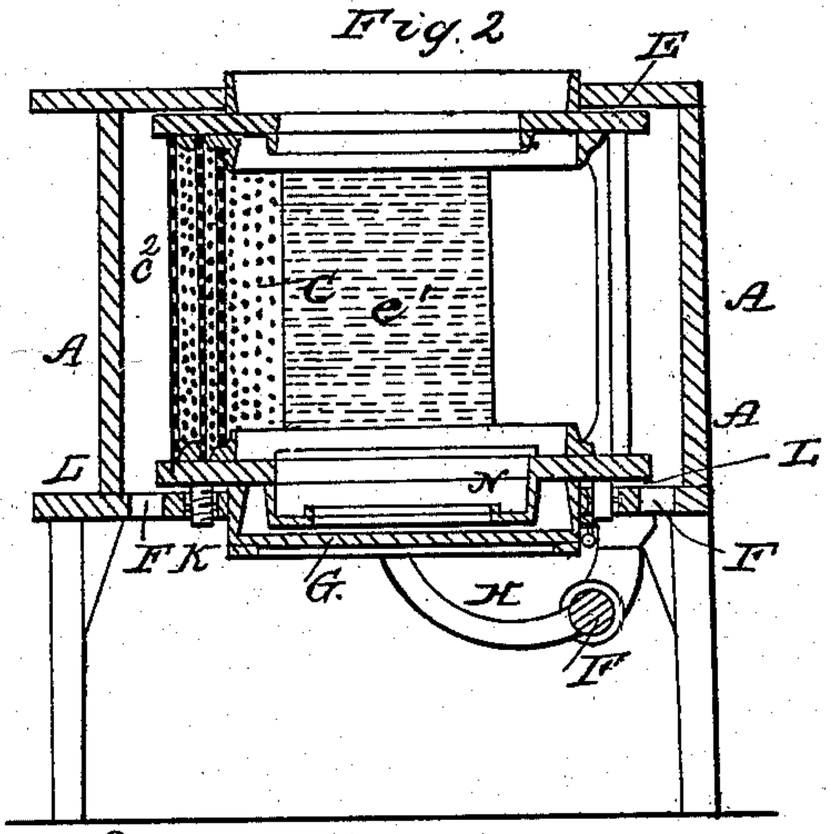


Fig. 1.

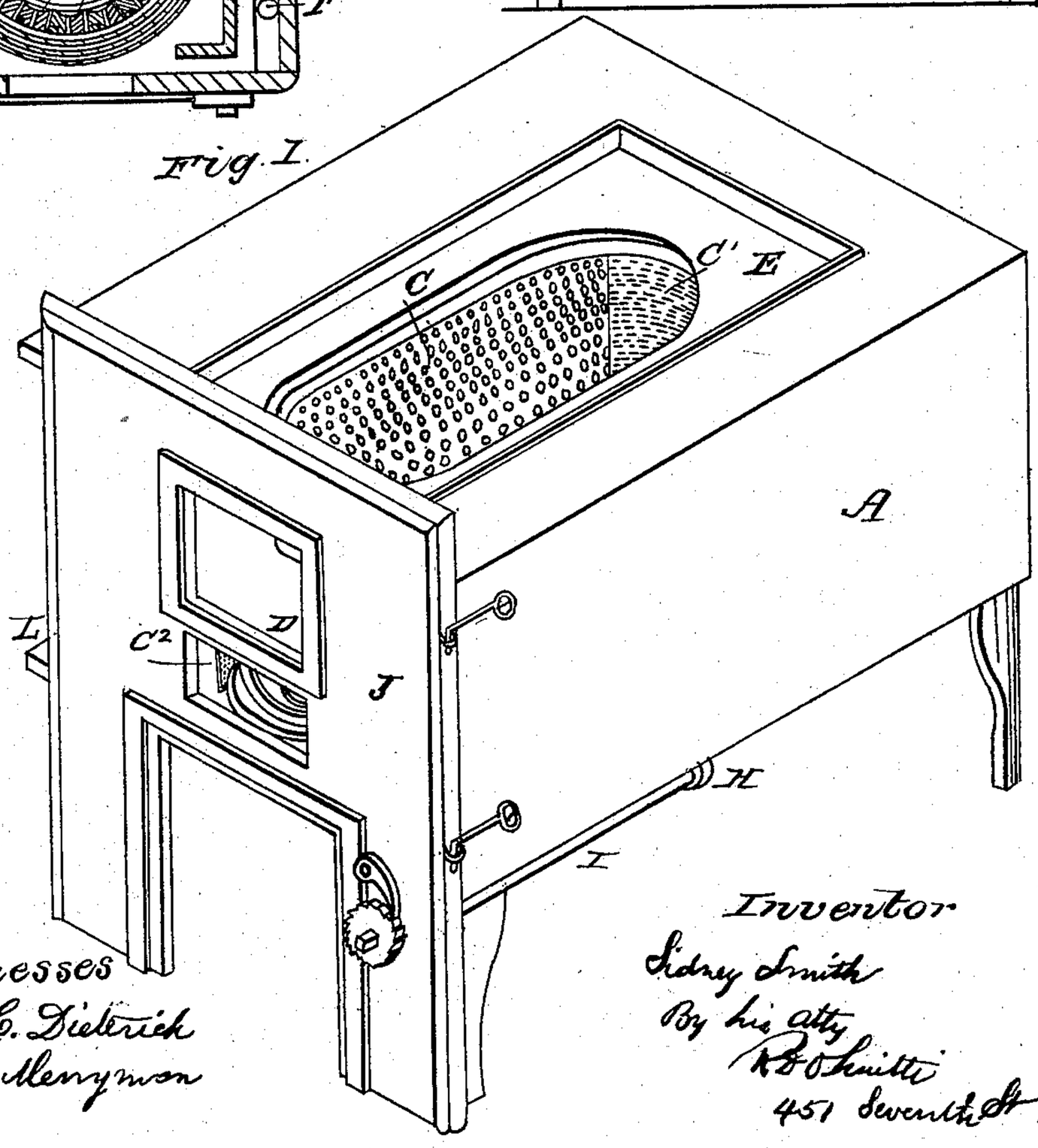
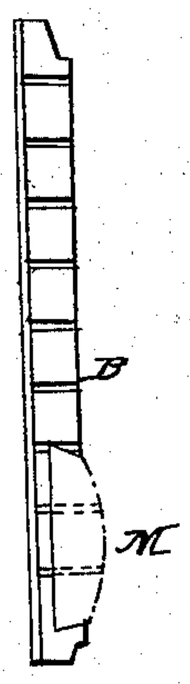


Fig. 4



Witnesses

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SIDNEY SMITH, OF WORCESTER, MASSACHUSETTS.

Letters Patent No. 63,956, *dated April* 16, 1867.

FIRE-CHAMBER FOR FURNACES.

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, SIDNEY SMITH, of Worcester, in the county of Worcester, and State of Massachusetts, have invented a new and useful Improvement in Fire-Chambers for Furnaces; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of my fire-chamber.

Figure 2 is a vertical cross-section of the same.

Figure 3 is a horizontal section.

My invention relates to the construction of a fire-chamber for extensive heating purposes in connection with the warming of buildings, generating steam, &c., &c., by combustion of fuel according to the principles set forth in my patent of July 31, 1866. And its nature consists in, first, the manner of constructing the inner wall of the fire-chamber so as to be adapted to the burning of either wood or coal, and so that the tendency of iron plates to warp when exposed to intense heat may be neutralized; second, in constructing the fire-chamber so that it may be removed entire from the casing or frame which supports it for purposes of repair; third, in the manner of closing the bottom of the chamber.

That others may understand the construction and operation of my invention, I will more particularly describe it.

The casing or framework A which supports and encloses the fire-chamber may be of any desired form or material, as may be required by the circumstances of any special location. The casing exhibited in this application is to be regarded simply as a practicable form in which the apparatus may be constructed, but I do not confine myself to any of the exhibited details of this part of my invention. For the principles underlying the construction of my fire-chamber, and embracing my system of producing combustion, I make reference to my patent dated July 31, 1866. The second part of my invention herein set forth, however, does not exclusively pertain to a fire-chamber constructed in accordance with the principles therein set forth. My fire-chamber consists of an inner wall, composed of the cast-iron staves B B, and two or three surrounding jackets C C^1 C^2. These all rest upon the bottom plate D, and are covered by the top plate E, so that there are enclosed air-spaces between these jackets, and between the jacket C and the staves B. Outside of the jacket C^2 is an air-chamber enclosed by the casing A, and having access to the external air through the perforations F in the plate D. At the bottom of the fire-chamber is the trap G, through which ashes and cinders are permitted to escape; this trap is held up in place by the arm H attached to the ratchet-shaft I, or by means of some other convenient device. The bottom plate D, and top plate E, are secured together by bolts and screws, so that with their included staves, jackets, &c., they form a complete structure independent and separate from the case A. The front plate J is made separate from the remainder of the casing, and is only secured to it by means of hooks, screws, or other convenient contrivances, so that it may readily be removed when it is desired or necessary to remove the fire-chamber for repairs, or otherwise. The rollers K K are inserted in the bottom plate L of the casing, and the bottom plate D of the fire-chamber rests upon them. They are in number sufficient to form a complete track way upon which the fire-chamber will travel in passing in and out of the casing A. The staves B are made of cast iron, and upon one rear edge I make a rebate, and upon the other a flange, so that when they are placed properly in the fire-chamber the rebate of one fits over the flange of the other, and they thus afford each other mutual assistance in resisting the effects of expansion and contraction, and the warping effect of heat. These staves are grooved upon their inner sides and are perforated with a large number of small holes, which are smallest at their orifice in the inner surface of the stave. If this chamber is designed for the combustion of wood, the staves may pass from top to bottom, presenting the same surface, but if it is designed for the combustion of coal, it is necessary that their lower portions should be protected by fire-brick. This I do by casting those staves with a recess, as at M, into which fire-brick are to be introduced and secured. The ledge N also affords facility for securing fire-brick or fire-clay around the lower portion of the fire-chamber below the edges of the fire-brick. The jackets C C^1 C^2 are constructed of sheet metal, finely perforated by punching or otherwise. I deem it advantageous to perforate these jackets with different degrees of fineness, the coarser perforations being in the innermost jacket C.

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

The cast-iron perforated flanged and rebated staves B, for the purpose of forming a fire-chamber, substantially in the manner set forth.

A fire-chamber constructed substantially in the manner described, so as to be removable entire from the frame or casing supporting it, for the purpose set forth.

In combination with the trap G, the arm H, and ratchet-shaft I, substantially as and for the purpose set forth.

In combination with the fire-chamber claimed in the second claim, the rollers K, substantially as and for the purpose described.

In combination with the fire-chamber claimed in the second claim, the removable front J, substantially as and for the purpose set forth.

SIDNEY SMITH.

Witnesses:
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GEO. F. LEE.