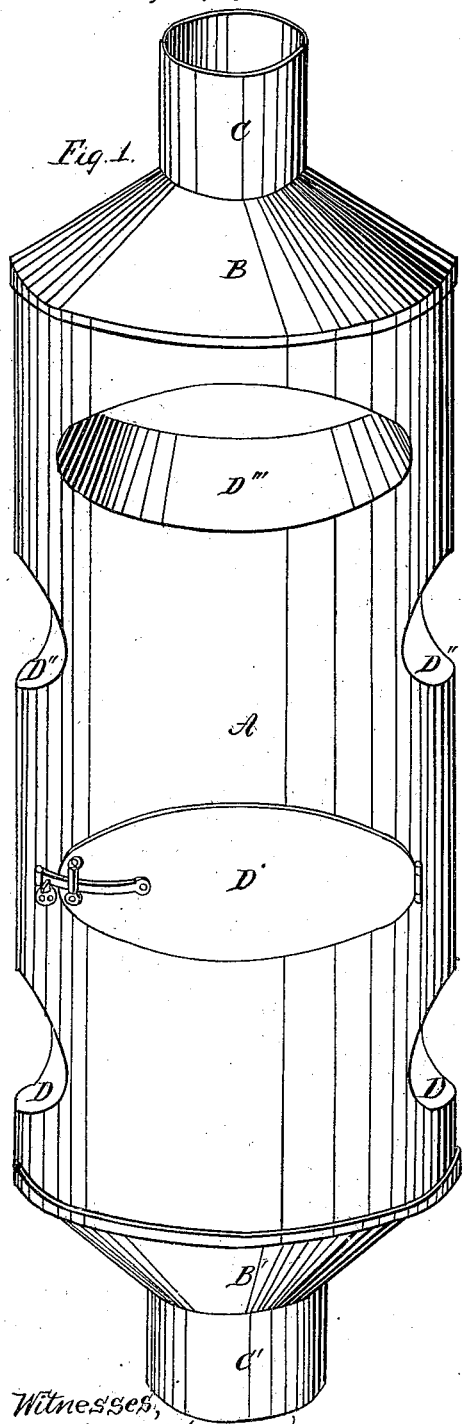


*J. Beebe.*

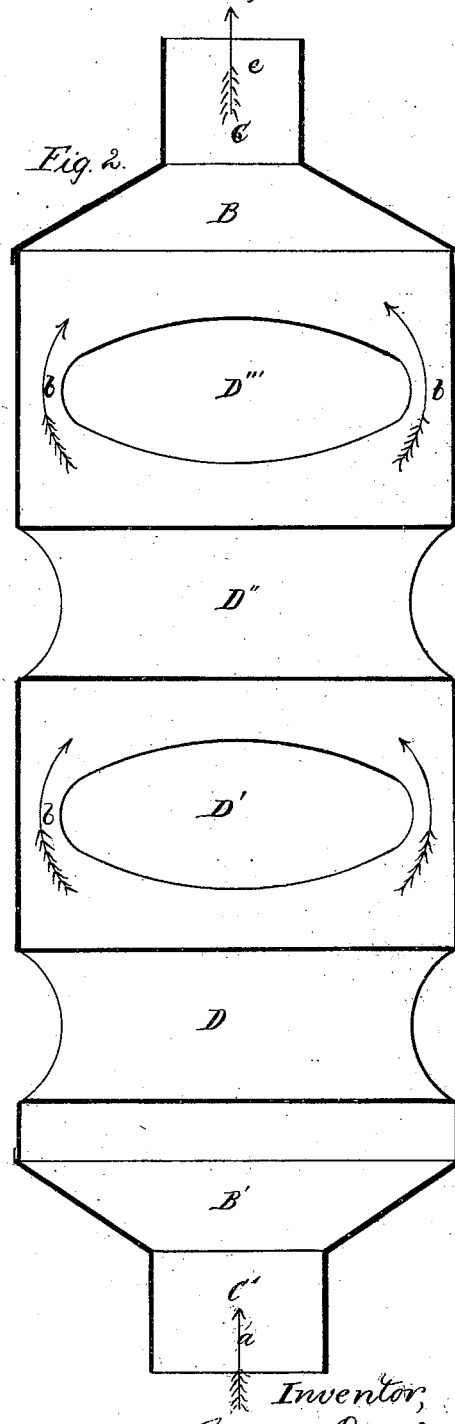
*Heating Drum.*

*N<sup>o</sup> 53,077.*

*Patented Mar. 6, 1866.*



Witnesses,  
*P. A. Hayne*  
*Henry Sloan*



*Inventor,*  
*James Beebe*

# UNITED STATES PATENT OFFICE.

JAMES BEEBE, OF CHICAGO, ILLINOIS, ASSIGNOR TO HIMSELF AND  
H. HUBER, OF BLOODY RUN, PENNSYLVANIA.

## STOVE-PIPE DRUM AND OVEN.

Specification forming part of Letters Patent No. 53,077, dated March 6, 1866.

*To all whom it may concern:*

Be it known that I, JAMES BEEBE, of the city of Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Heat Radiators and Ovens, which I denominate "Beebe's Radiator and Oven," to be used for radiating heat in hot-air furnaces, as a drum for stoves, as a dummy, and as an oven; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a perspective view, and Fig. 2 a vertical section through the center, the same letters representing the same parts in both figures.

The apparatus is composed of boiler or sheet iron or other sheet metal. Its body A is a vertical cylinder. D D'', &c., are a series of circular or oval-shaped tubes inserted in the body A, one above another, with their axes all in the same direction—that is, parallel to one another and at right angles to the axis of cylinder A—thereby forming horizontal tubular openings quite through the same. D' D''', &c., are a series of similar tubes, inserted also in the body A between or alternately with the tubes of the former series, but in a contrary direction, so that a vertical plane passing through the axes of the former series would be at right angles, or nearly so, with a vertical plane passing through the axes of the latter series of tubular openings.

B is the top, which may be either flat, funnel-shaped, or oval, and C the collar for receiving the pipe which carries off the smoke.

B' is the funnel-shaped bottom, and C' the collar for receiving the pipe from the stove, whenever used as a drum or dummy; but B' and C', when the apparatus is used with a hot-air furnace, are omitted, the bottom of cylinder A in that case fitting down upon the fire-box. Any number of these tubes or openings being closed at one end and having doors, as D', attached to the other end, become so many ovens, in which, from the peculiar arrangement of the two series of alternating tubes, the heat is distributed throughout with remarkable evenness, and by using those of different elevations almost any desired degree of heat may be had.

The arrows, Fig. 2, indicate the course of the current of heat *a* as it enters *b b b b* in its meanderings upward among and around the tubes, and *c* at its exit into the smoke-pipe.

As a radiator the power of my improvement results, first, from the very large amount of radiating-surface in proportion to its size, and, second and principally, from the fact that by the peculiar arrangement of the tubular openings, each one being crosswise of one next below and that next above it, so that the ascending current of heat is constantly being changed, and thus brought into actual contact with every part of the surface, not only of the cylinder but of every one of the tubes.

As an oven, I am aware that elevated ovens, being usually the inner one of two concentric horizontal cylinders between whose surfaces the heat passes at some distance from the ends, causing often too intense a heat where the current passes, while at the ends the heat may be quite insufficient, have been used before; but my oven differs from all those in that, as to novelty, it is in combination with the perpendicular cylinder and the novel arrangement of the two series of tubes inserted therein, as above described, and the current of heat, instead of passing around the middle, as in those, is divided by the flue immediately below that used as an oven into two parts, one of which strikes the oven at each end, and thus produces an evenness or equality of heat or temperature throughout.

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

1. The combination of cylinder A with the two series of tubes or tubular openings D D'', &c., and D' D''', &c., inserted therein, as and for the purpose shown and represented.

2. The closing of one end of any number of the tubes or tubular openings D, D', D'', &c., and the attachment of oven-doors at the other ends, as D', in combination with cylinder A and the two series of tubes D D'', &c., and D' D''', &c., inserted therein, as and for the purpose shown and represented.

JAMES BEEBE.

Witnesses:

P. A. HOYNE,  
H. SLOAN,