

Stove.

Patented Jan. 5, 1864.

Fig. 1.

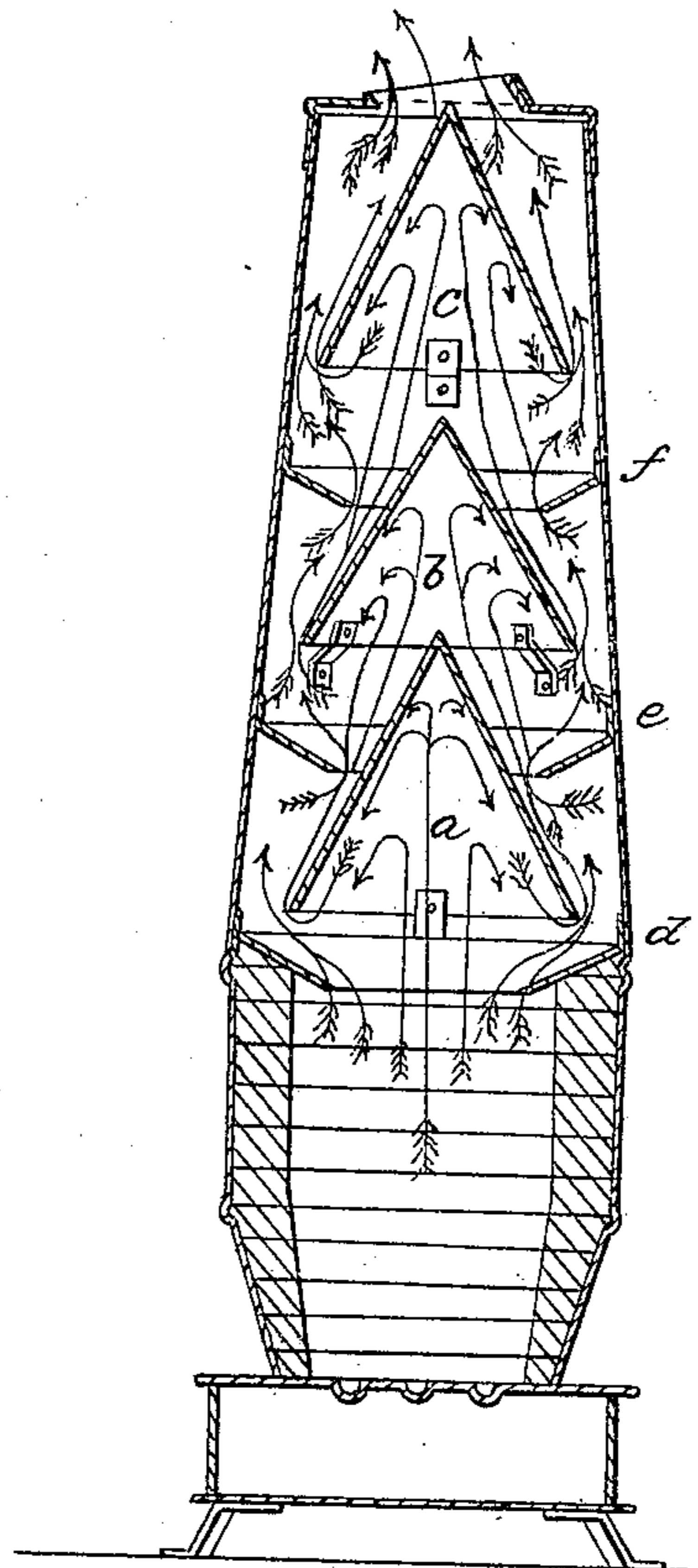
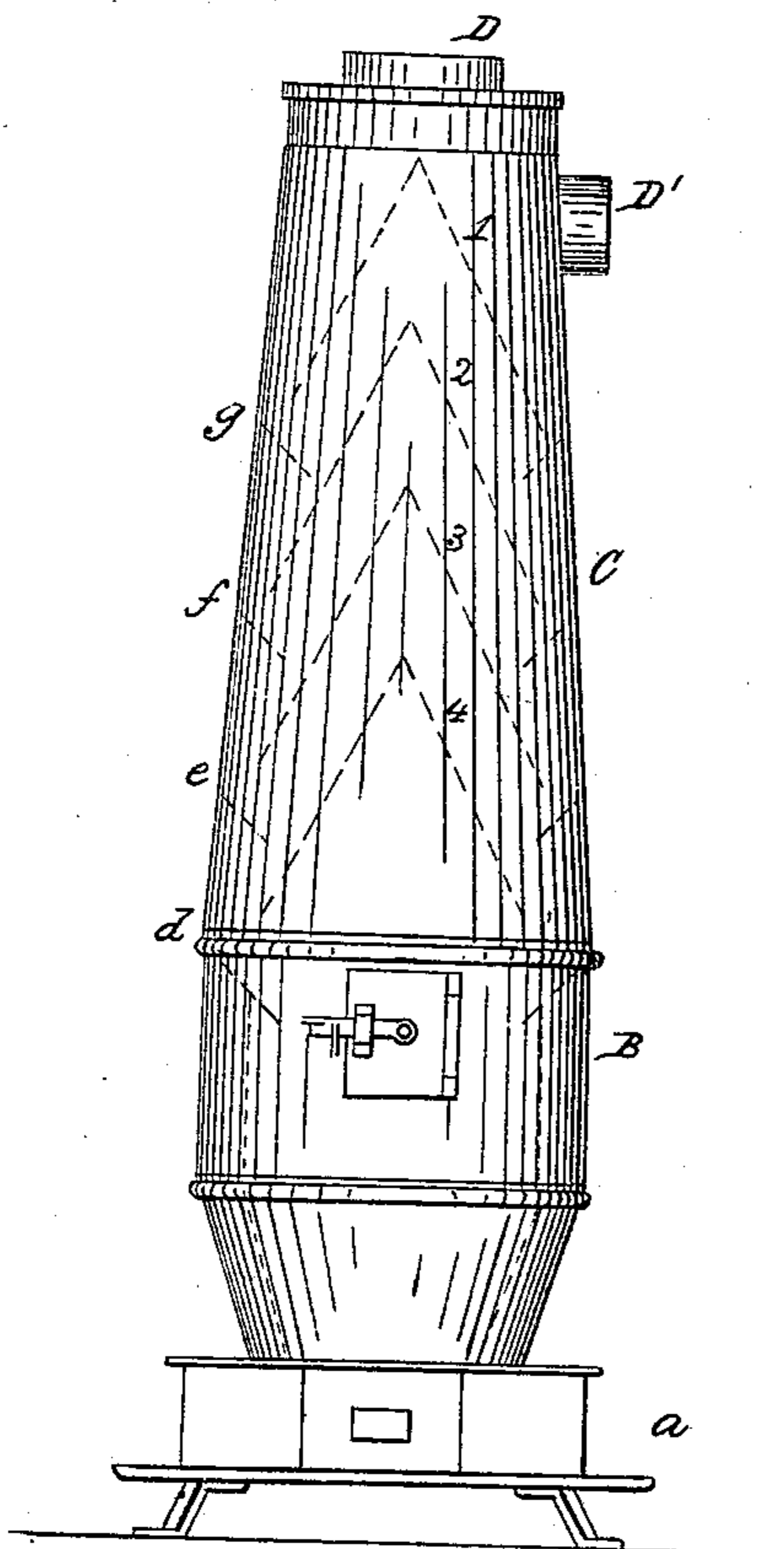
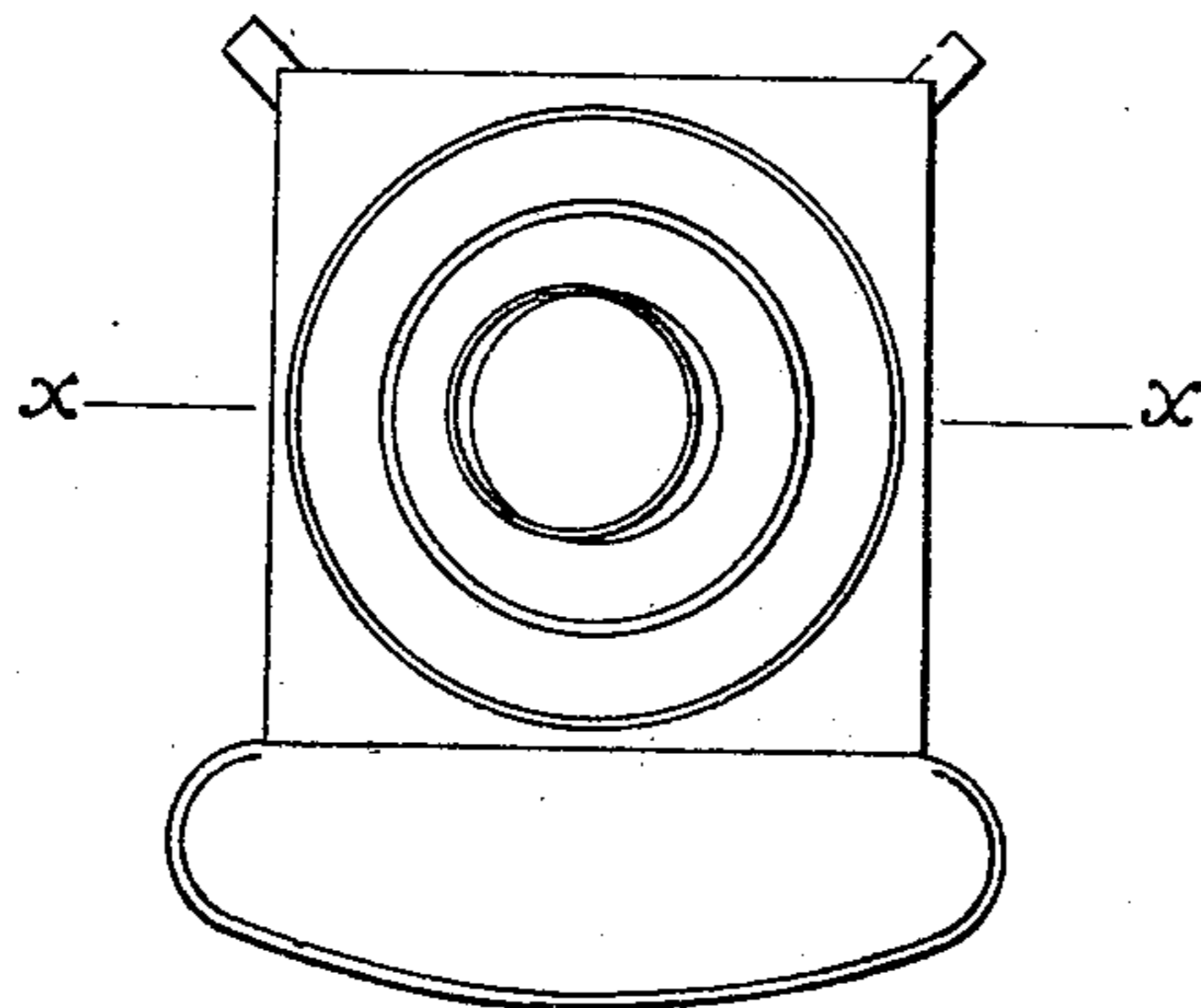


Fig. 3.



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IMPROVEMENT IN STOVES.

Specification forming part of Letters Patent No. 41,152, dated January 5, 1864.

To all whom it may concern:

Be it known that I, JOHN HAFFER, of Bedford, in the county of Bedford and State of Pennsylvania, have invented a certain new and useful Improvement on the Cone Radiator patented to me October 27, 1863, numbered 40,405; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, and in which—

Figure 1 represents a view in elevation of my improved radiator; Fig. 2, a vertical central section through the same at the line *xx* of Fig. 3, and Fig. 3 a plan or top view of the same.

While my patented radiator is very meritorious and widely approved, it is the object of my present improvement to render it even more economical in the consumption of fuel by extending its radiating-surface without changing the form, position, or number of the cones; and my invention consists in attaching to the jacket or case projecting flanges at a proper angle to shed the ashes and soot, and arranging these flanges so that passing beneath the edges of the cones they shall cause the ascending products of combustion to traverse a greater distance over the outer surface of the cones, and also heat the flanges, which thus furnish an increased radiating-surface in proportion to their size and number, and all without interrupting the perfect draft of the radiator.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and mode of operation.

In Fig. 1 of the accompanying drawings, A represents the ash-box; B, the fire-box; C, the jacket, and D the cap. The red lines 1 2 3 4 represent the form and position of the cones. In Fig. 2 the fire-box B is shown as lined with fire-brick, (though any properly-refractory material may be used,) and three cones are suspended in the jacket. This jacket may be a plain or tapered cylinder, round or polygonal, and the first cone, *a*, should be of cast, while the cones *b* and *c* may be of wrought, iron or other suitable metal, and all the cones should be fastened in position by straps or lugs fastened to the fire-pot to support cone *a* and to the jacket for cones *b* and *c*.

The number and arrangement of the cones one above the other may be such as to leave the required space for the reverberation of the products of combustion and for their escape, with a proper draft to support an active combustion, which may be kept under control by proper dampers in the exit-pipe, and this pipe may be situated either on the top of the radiator, as at D, or on the side, as at D', Fig. 1, all as shown in my original Patent No. 40,405.

To apply my improvement to such a radiator, I introduce a cast-iron flange and secure it to the outer fire-pot by straps *d*, Figs. 1 and 2, and inclined at a proper angle to shed into the fire-pot the soot and ashes that may fall upon it from the outer surface of the cones *a b c* of Fig. 2, or 1 2 3 4 of Fig. 1. This flange should be situated far enough beneath the lower cone to leave ample space for the draft between the flange and the lower edge of the lower cone, and the lower edge of the flange *d* should project a short distance beyond the inner walls of the fire-brick or other refractory material lining the fire-pot, to deliver the falling ashes and soot near the center of the fire to consume the combustible parts of the soot. This projection of the inner edge of the flange *d* beyond the walls of the fire-pot has the additional effect of deflecting the products of combustion directly into the center of the lower cone. Additional flanges, *e*, *f*, and *g*, are added in any number, equal to or fewer than the cones, as may be desired. These flanges must be suitably attached by straps or rivets to the jacket, and so situated that their edges shall pass under the edges of the cones at a suitable angle to shed the soot and ashes, and at such a distance therefrom as not to obstruct the draft, but to allow a free escape of the ascending products of combustion in the line shown by the arrows in Fig. 2.

The obvious effect of my improvement is to cause the products of combustion, in ascending from the fire-pot and after being thrown by the projecting edge of the lower flange into the first cone, to curve in and out between the flanges and jacket in such manner as to impart to the flanges a degree of heat no less than that which is imparted to the cones, and thus give the jacket a higher and earlier radiation than can be effected by any stove, radiator, or furnace with which I am acquainted,

while there is no possibility of the flanges becoming so loaded with soot or ashes as to obstruct the draft.

It is obvious that this arrangement of flanges within the jacket is equally applicable to right or oblique cones, and that there may be two or more used, at pleasure.

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

1. The flange *d*, resting on and projecting beyond the walls of the fire-pot, for the purposes set forth.

2. The combination of a series of two or more flanges with the series of two or more cones of a stove, furnace, or radiator, arranged and operating substantially in the manner described.

In testimony whereof I have hereunto subscribed my name.

JOHN HAFFER.

Witnesses:

JOHN J. CESSNA,
A. J. SANSOM.