

S. D. VOSE.
Heating-Stoves.

No. 150,638.

Patented May 5, 1874.

fig. 1.

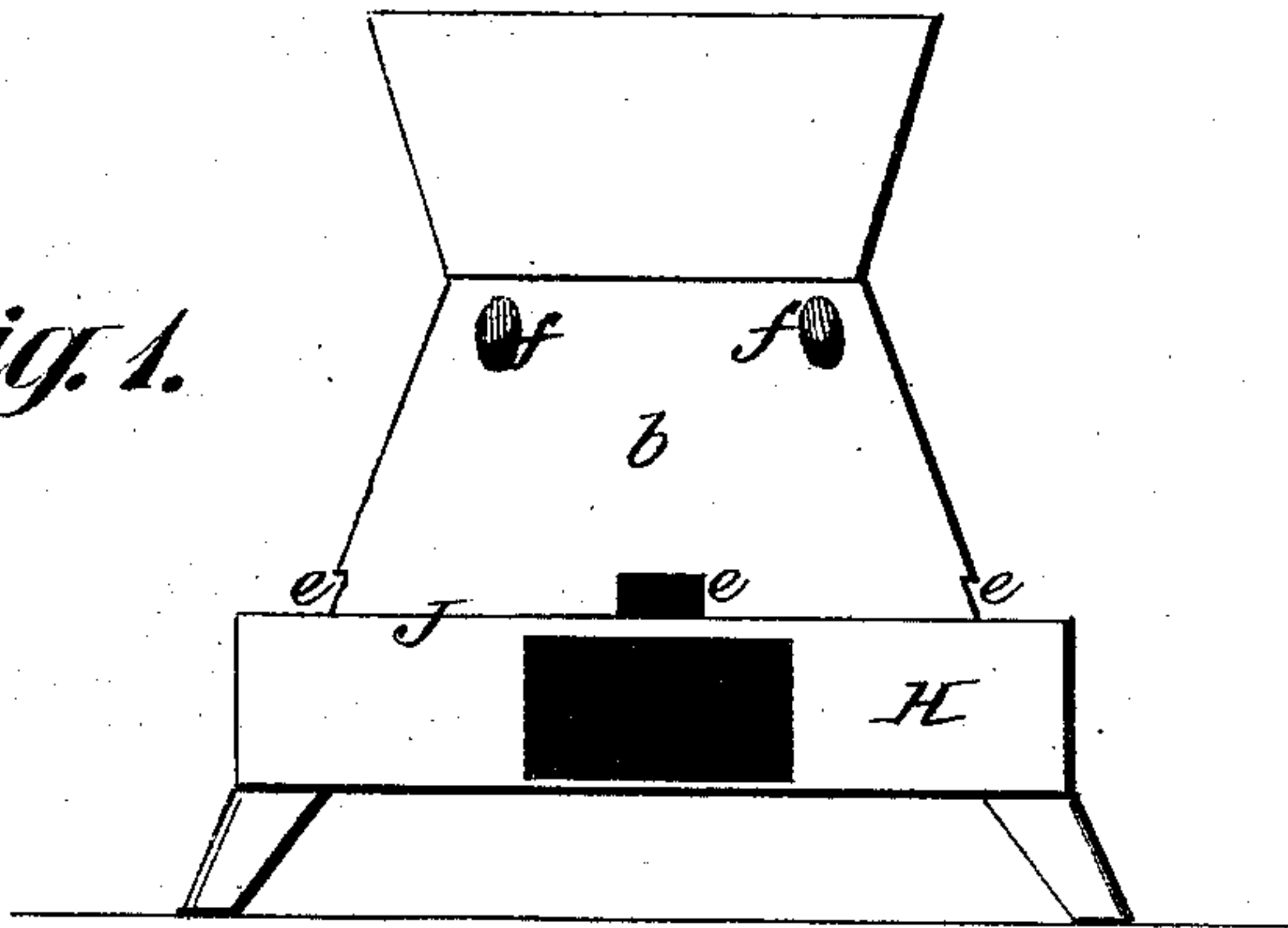


fig. 2.

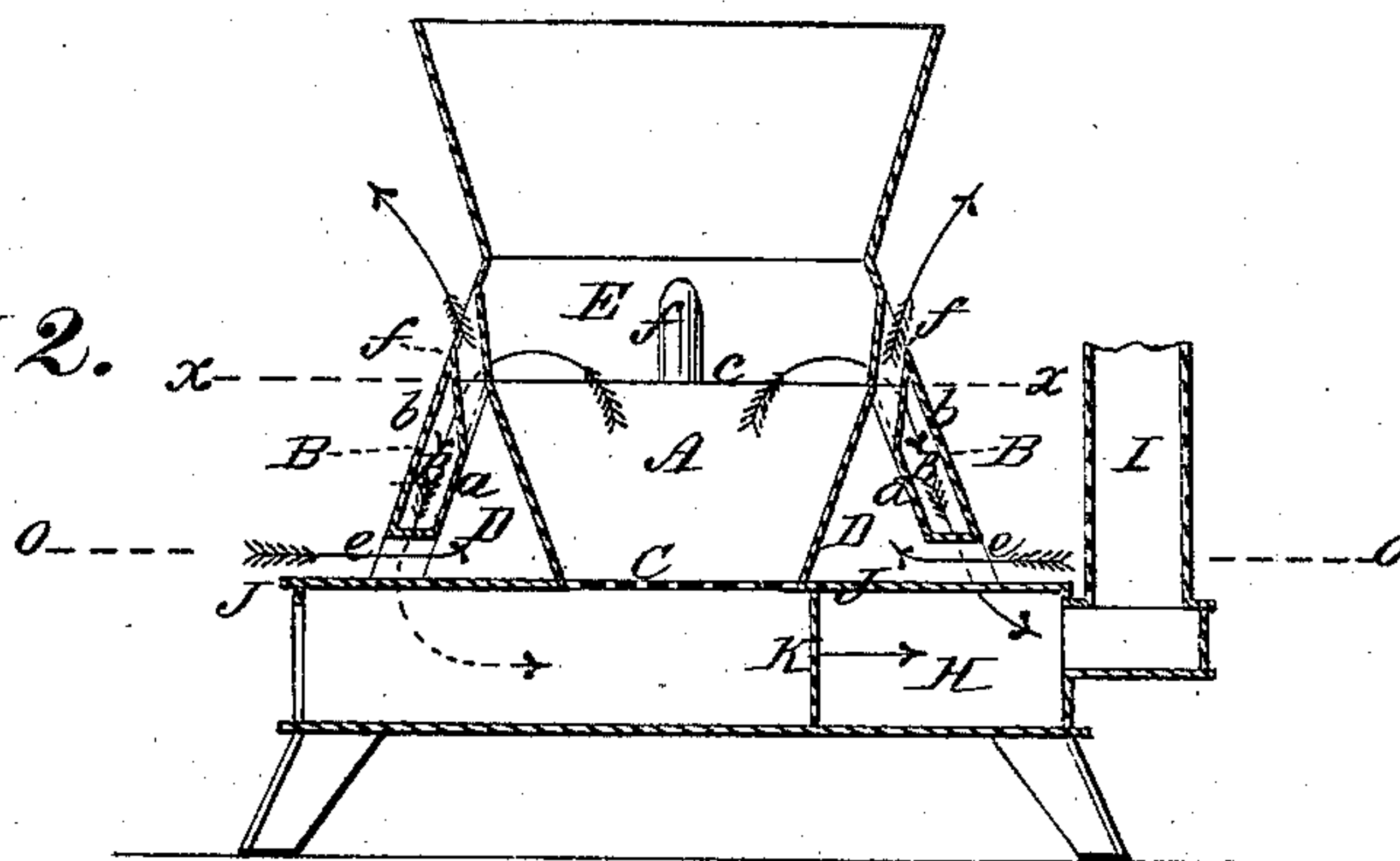


fig. 3.

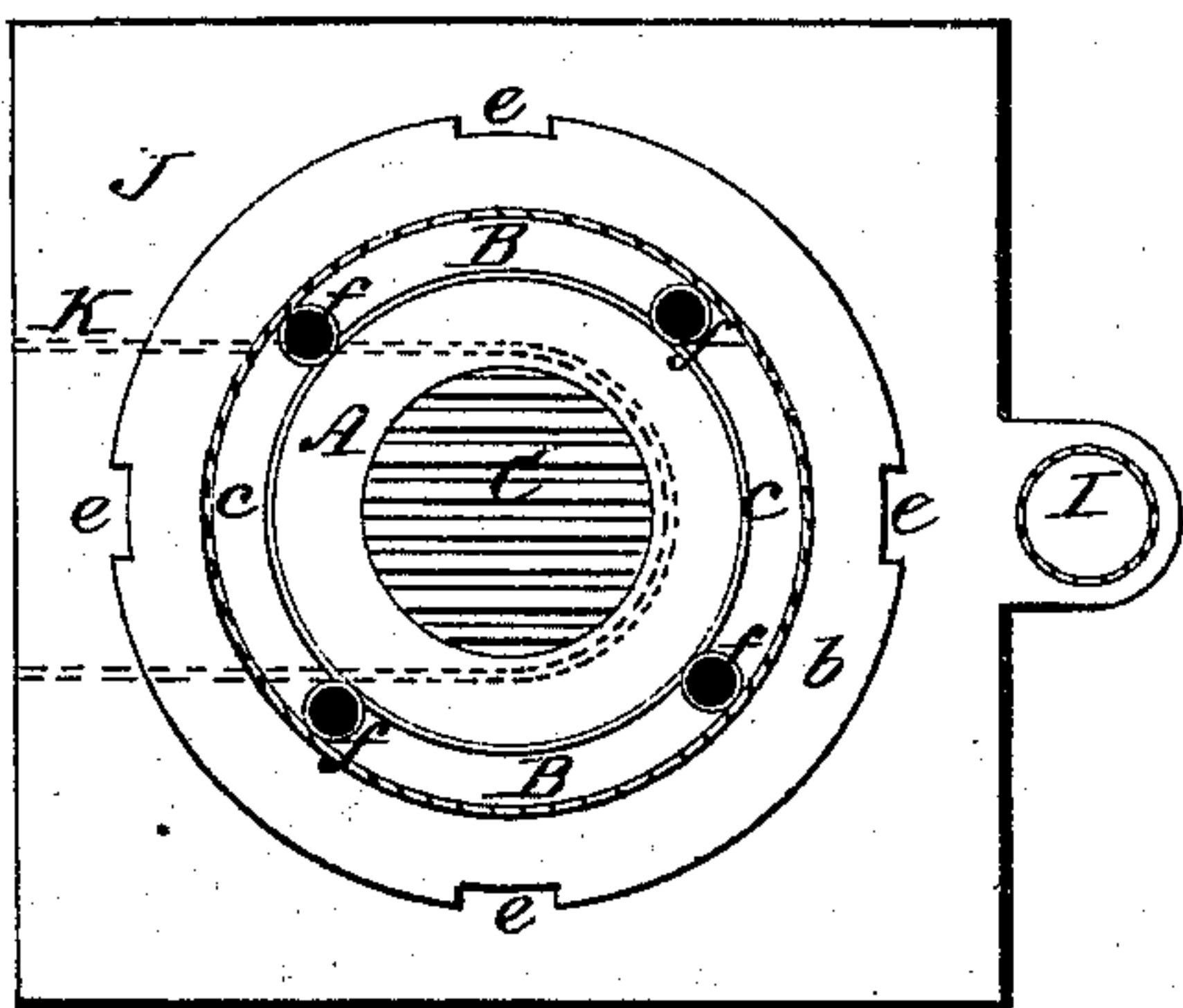
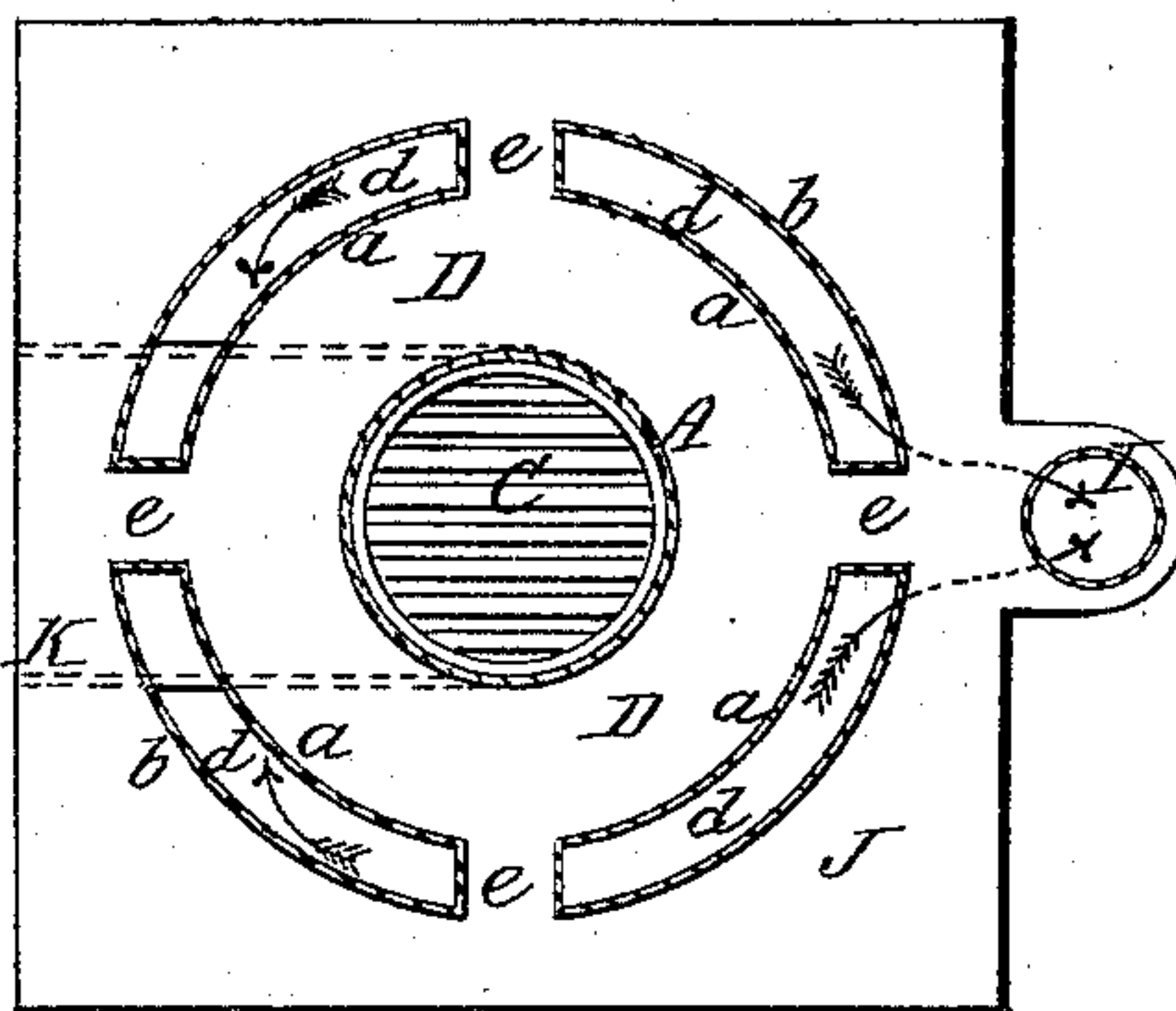


fig. 4.



Witnesses.

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UNITED STATES PATENT OFFICE.

SAMUEL D. VOSE, OF MILWAUKEE, WISCONSIN.

IMPROVEMENT IN HEATING-STOVES.

Specification forming part of Letters Patent No. 150,638, dated May 5, 1874; application filed February 13, 1874.

To all whom it may concern:

Be it known that I, SAMUEL D. VOSE, of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Heaters for Buildings, of which the following is a specification:

This invention relates more particularly to the base of coal-burning stoves and furnaces; and the invention claimed herein consists in the combination, with the fire-pot and an outer casing, of an inner wall depending from said fire-pot, surrounding it and isolated from it, whereby is formed an annular outside flue, (communicating at the top with the fire-chamber and at the bottom with the return-flue,) and a heating-chamber between the said depending inner wall and the fire-pot; also, of the descending flue arranged to depend from, surround, and separated from the fire-pot, in combination with the intervened heating-chamber, having inlet and outlet air-tubes crossing the said depending flue, the object and design of the said invention being to adapt the base for coal-burning stoves or furnaces, and to obtain an increased breadth of base heating-surface, there being, in effect, three separate and distinct heating-surfaces for the diffusion of the heated air—viz., the outer and inner surfaces of the depending flue and the outer inclosed surface of the fire-pot, while the chamber between the depending wall and the fire-pot is heated by the latter and the said wall, and through which intervened chamber, by means of the pipes crossing the surrounding outer flue, currents of cold air enter and pass out heated into the room. The fire-pot, although being entirely inclosed, is nevertheless brought, by the arrangement stated, in constant contact with rapidly-traveling currents of cold air, and thereby rendering it as durable as if it were wholly exposed.

In the accompanying drawings, Figure 1 represents an elevation, and Fig. 2 a section of the base portion, of heater embracing my invention; Fig. 3, a horizontal section taken at the line *x x* of Fig. 2; and Fig. 4, a horizontal section of the base, taken at the line *o o* of Fig. 2.

Surrounding the fire-pot A, and depending from the upper edge thereof, is the inner wall *a* of an overhanging annular flue, B, which wall may be straight, as shown, or of the form of the crown of an arch, and terminating at or near a line with the grate C of the fire-pot, the casing *b* forming the outer wall of said flue. Between the said inner wall *a* and the fire-pot A is interposed an annular space, D, having its greatest area either at the base or at the top, according to contour of the lower portion of the overhanging flue. This overhanging flue D opens into the fire-chamber E, at *e*, and into a lower chamber, H, at openings *d*, Fig. 4, said chamber, being the base return-chamber, communicating with the smoke-pipe I, so that the heat will descend the overhanging flue B outside of the chamber D, and into the said base return-flue. The lower portion of the air-heating chamber D communicates, by means of pipes or boxes *e*, with the outer air; and these may be arranged either above, as shown, or below the top plate J, while the overhanging annular flue D is intersected at or near its top by tubes *f* passing from the hot-air space with their issues into the room, as shown in Figs. 1 and 2, so that the cold air is drawn by the highly-rarefied air in the inclosed space D within the inlet-tubes *e*, and forced out of upper tubes *f*, creating thereby a rapid current of air, which, in its transit through the said chamber, impinges against the hot surfaces.

It may be deemed best in carrying out this invention to contract the overhanging flue at the bottom by a curved neck, so as to obtain a sharper angle of impingement of the heat from the fire.

Portions of the tubes *f* may be cast with the fire-pot and inner wall *a*, and the upper portions with the outer casing B, so that they will match when the parts are put together. The return-flue H has a division, K, for the ash-pan, and to separate the inlet draft-opening from the return-chamber.

I claim—

1. The inner wall *a*, depending from the fire-pot A, in combination with the latter and the outer casing *b*, to form the annular outside

flue B, (opening into the fire-chamber E and the base return-flue H,) and the heating-chamber D, between the wall *a* and the fire-pot, substantially as shown, and for the purpose described.

2. The base-flue D, arranged to depend from, surround, and isolated from the fire-pot A, in combination with the intervened heating-chamber D and the inlet and outlet tubes *e f*, cross-

ing the said depending flue, substantially as shown, and for the purpose described.

In testimony whereof I have hereunto set my hand to the above specification of my improvements in heaters for buildings this 29th day of January, A. D. 1874.

Witnesses: SAMUEL D. VOSE.

A. E. H. JOHNSON,

J. W. HAMILTON JOHNSON.