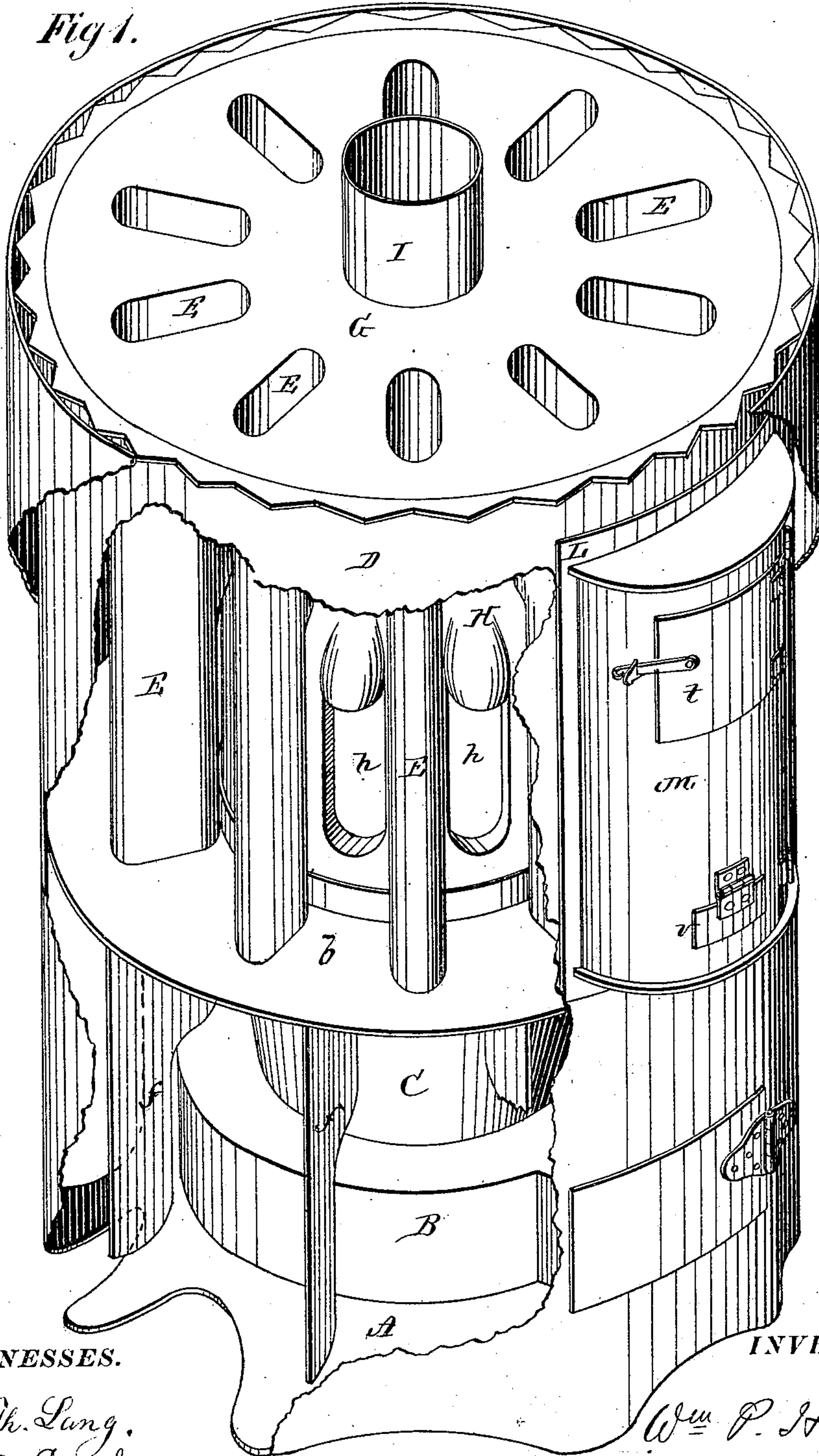


W. P. HALL.
Stoves and Furnaces.

No. 153,073.

Patented July 14, 1874.

Fig 1.



WITNESSES.

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Fig 2.

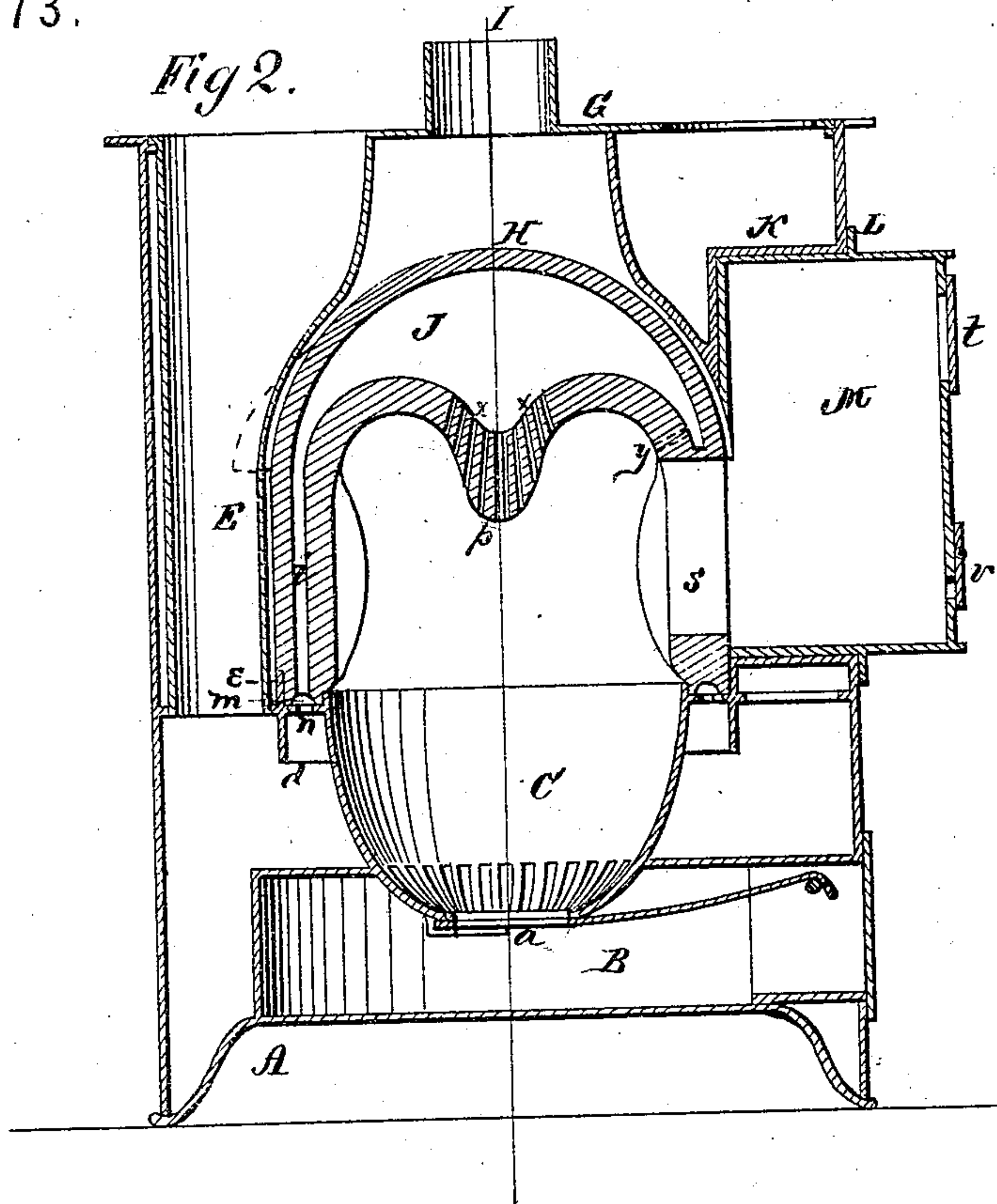


Fig 3.

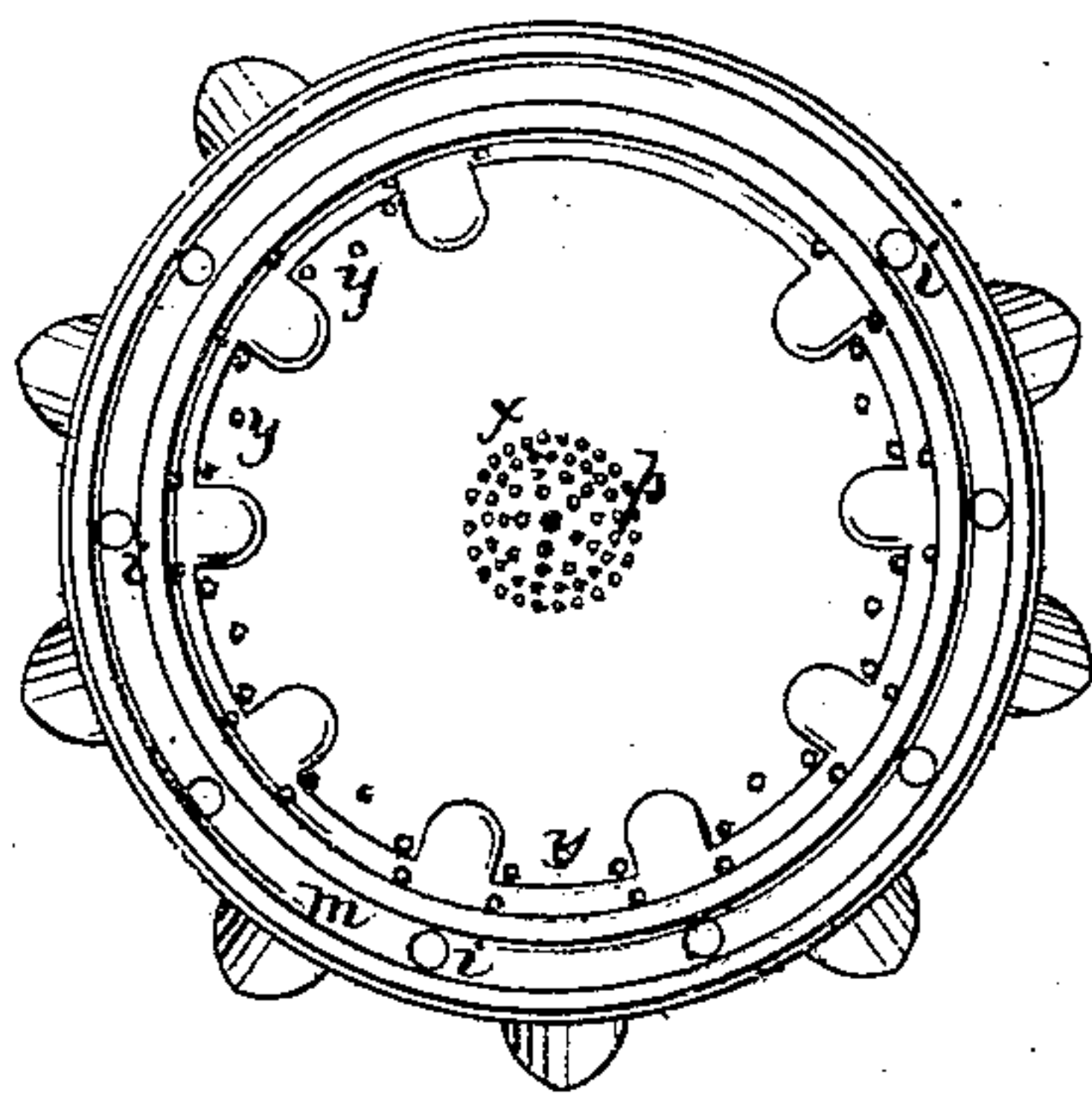
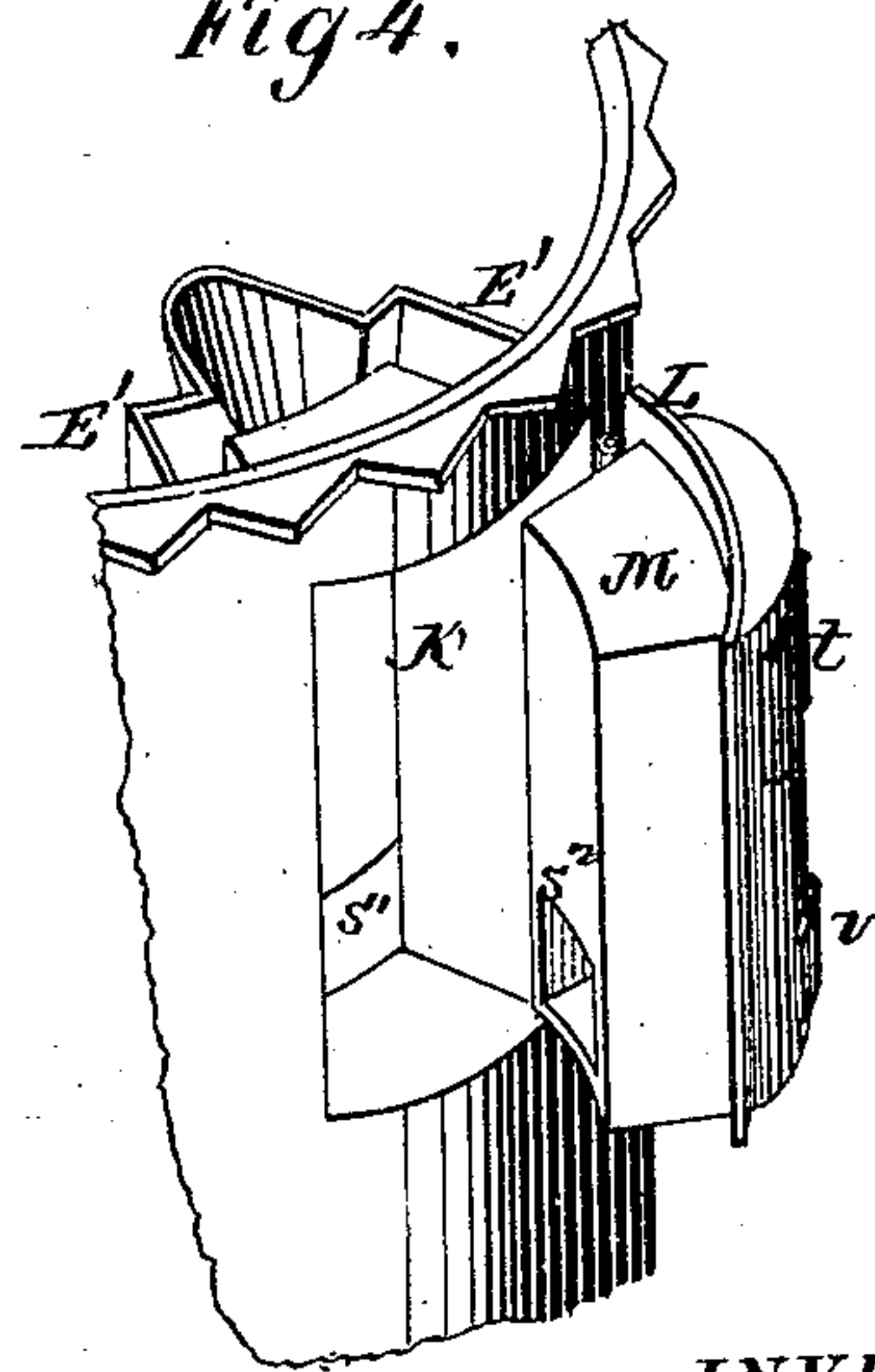


Fig 4.



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UNITED STATES PATENT OFFICE.

WILLIAM P. HALL, OF PIQUA, OHIO.

IMPROVEMENT IN STOVES AND FURNACES.

Specification forming part of Letters Patent No. 153,073, dated July 14, 1874; application filed June 3, 1874.

To all whom it may concern:

Be it known that I, WILLIAM P. HALL, of Piqua, in the county of Miami and in the State of Ohio, have invented certain new and useful Improvements in Stoves and Furnaces; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon, making a part of this specification.

My invention relates to that class of heating-furnaces or stoves in which a series of pipes are arranged around the fire-box for heating the air passing through them; and it consists in the construction and arrangement of the several parts, as hereinafter more fully set forth and claimed.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawings, in which—

Figure 1 is a perspective view of my furnace or stove, part of the casing being broken open to show the interior thereof. Fig. 2 is a longitudinal vertical section of the same. Fig. 3 is an inverted view of the dome over the fire-pot; and Fig. 4 is a perspective view of a part of the casing, showing the door of the fuel-magazine.

A represents an ordinary stove or furnace base with ash-box B and fire-pot C, the latter having a sliding grate, *a*, in the bottom. D represents the casing or jacket which surrounds the entire base B and extends upward a suitable distance above the fire-pot. Inside of this casing is a horizontal flange, *b*, the inner edge of which rests on the upper edge of the fire-pot C. The flange *b* is provided with a circular downward-projecting flange, *d*, and a circular upward-projecting flange, *e*, as shown in Fig. 2. Between the flanges *d e* and the casing D the flange or rim *b* is provided with a series of slots or openings for the insertion of the lower ends of a series of tubes or flues, E E, which pass through and are secured to the top or crown-sheet G of the casing. From below the rim *b* partitions *f f* extend downward to the lower edge of the casing, forming

a series of channels, one for each flue E, so as to divide the cold air as it passes in under the lower edge of the casing and direct it to the various flues. These flues may then be arranged to conduct the heated air to different apartments, and the opening and closing of one or more registers will not affect the heat passing through other registers to other apartments. Upon the inner edge of the rim *b* within, and held by, the flange *e*, is a dome, H, made of fire-brick, or other suitable material. This dome is constructed as shown in Fig. 2, with a series of slots, *h h*, in the sides between the flues E E, through which the products of combustion pass to envelop the flues E E and heat the air passing through them, the products of combustion passing upward and through the pipe I in the center of the crown-sheet G. In the top of the dome H is formed an interior chamber, J, to which passages *i i* lead through the sides of the dome between the slots *h h*. The lower ends of the passages *i* open in a groove, *m*, made in the lower end of the dome, and this groove is supplied with cold air through apertures *n* in the inner edge of the rim *b*, as shown in Fig. 2. The air that passes up through the passages *i i* into the chamber J in the top of the dome escapes into the combustion-chamber within the dome through a number of small passages, *x*, made in and around a conical projection, *p*, extending downward from the center of the dome. The air also escapes through passages *y* in the upper end of each slot *h*. By these means a sufficient amount of oxygen is obtained and supplied to the fire for a thorough combustion of the fuel. *s* represents the aperture for the admission of the fuel in the fire-dome H, and opposite the said opening is formed a box, K, on the inside of the casing D, which box extends up to, or nearly to, the top of the casing, and has an aperture, *s*¹, corresponding with the aperture *s* in the fire-dome. The front of the box K is closed by a hinged door, L, on which is formed the magazine M, said magazine having on its inner side near the bottom an aperture, *s*², corresponding with the openings *s*¹ and *s*, and on the front near the top a feed-door, *t*, and at the bottom a draft-door, *v*. On each side of the box K is a flue, E', corre-

sponding with, or rather taking the place of, the flue E, which is removed or omitted to give room for the box K.

The above-described invention when made on a large scale is used as a furnace, and is placed in a basement or cellar or other suitable place in a building for heating the same by means of the usual convey-pipes, and when made on a small scale it is used as a heating-stove.

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

1. The combination, with the fire-dome H, having air-inlet passages *i* and groove *m* in its lower edge, of the rim *b*, provided with

flanges *d e* and apertures *n*, substantially as and for the purposes herein set forth.

2. The partitions *f f* in combination with the casing D and flues E E, substantially as set forth.

3. The hinged door L, provided with the magazine M, in combination with the box K in the casing D, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 3d day of June, 1874.

WILLIAM P. HALL.

Witnesses:

J. M. MASON,

C. M. ALEXANDER.