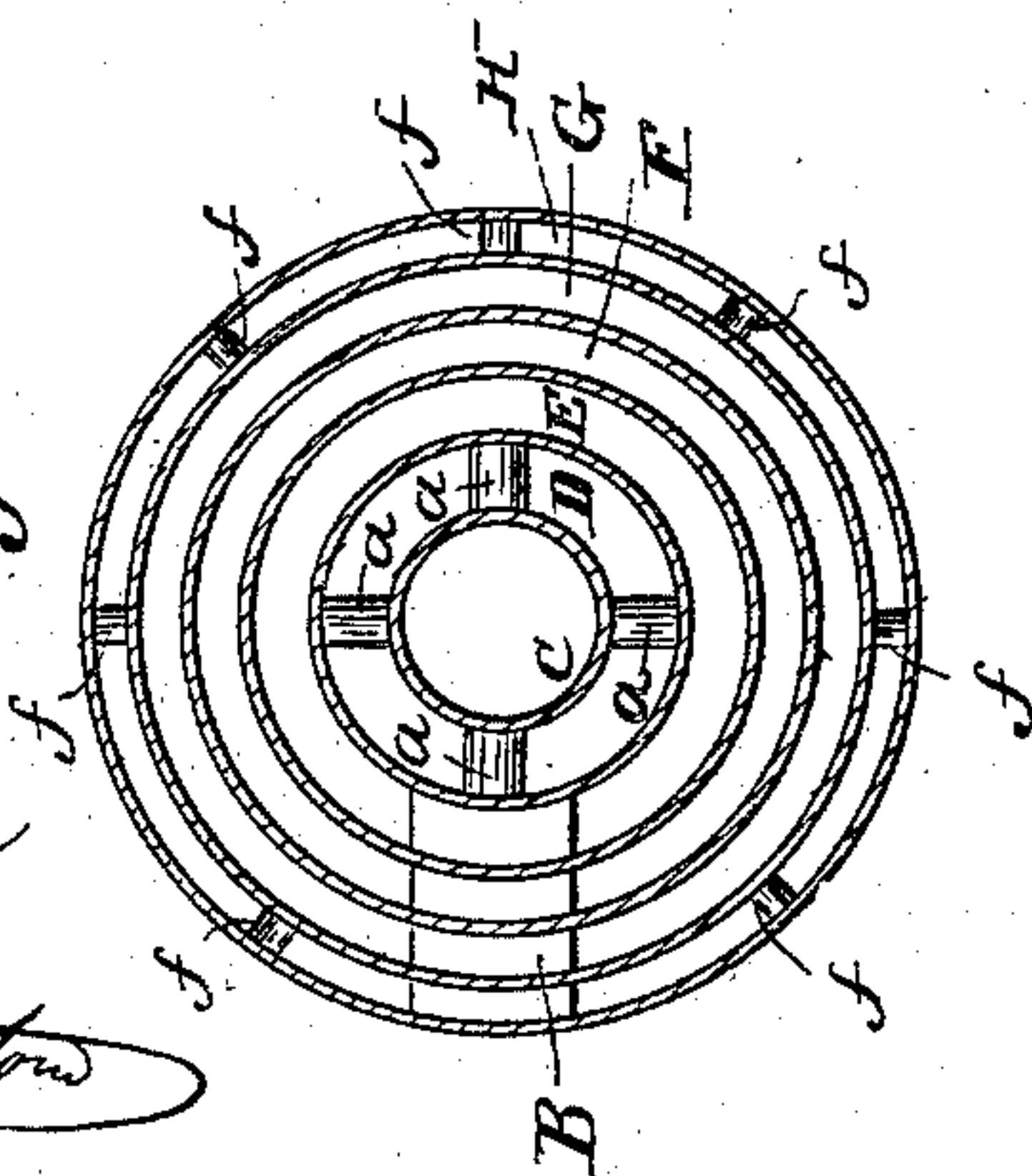
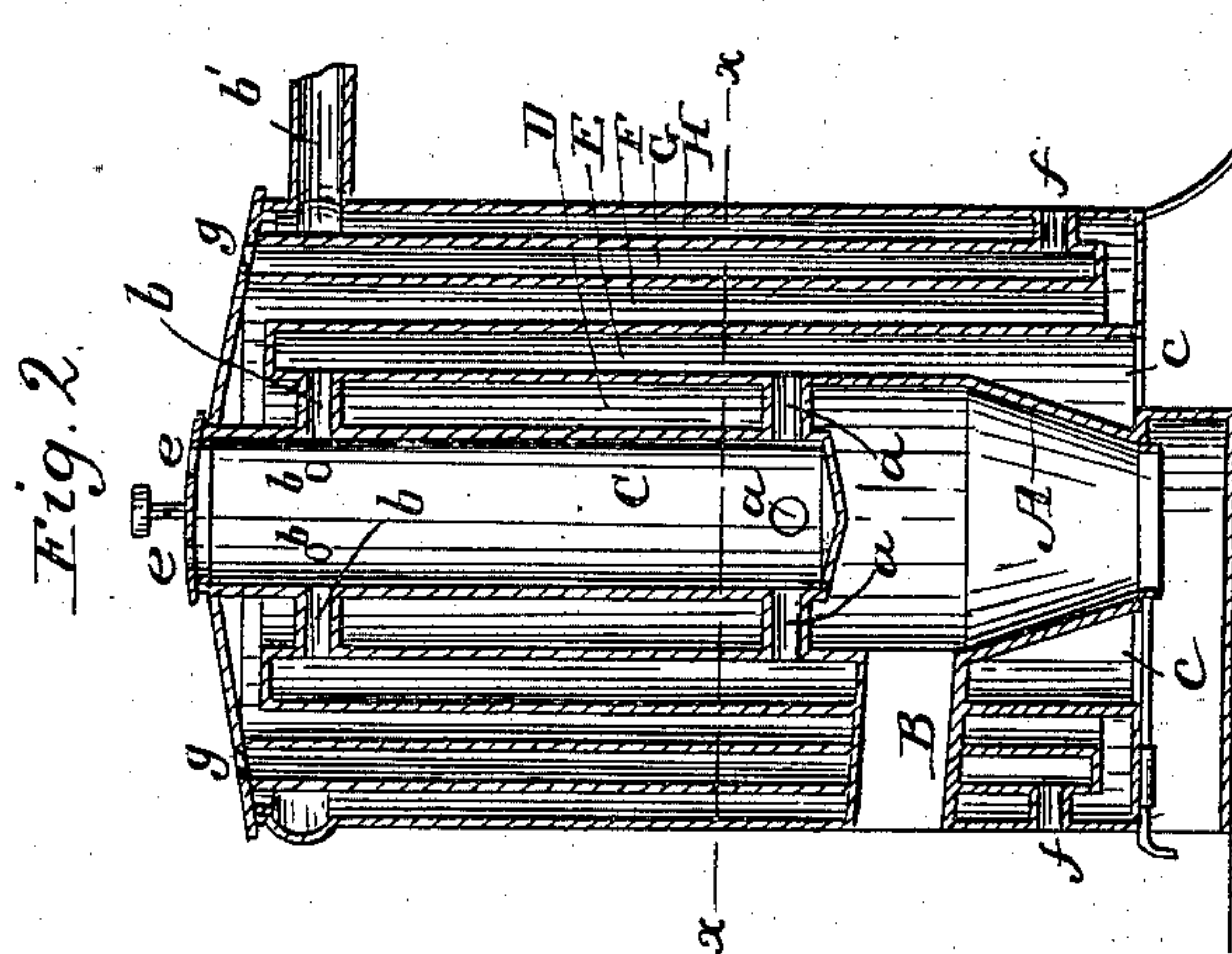
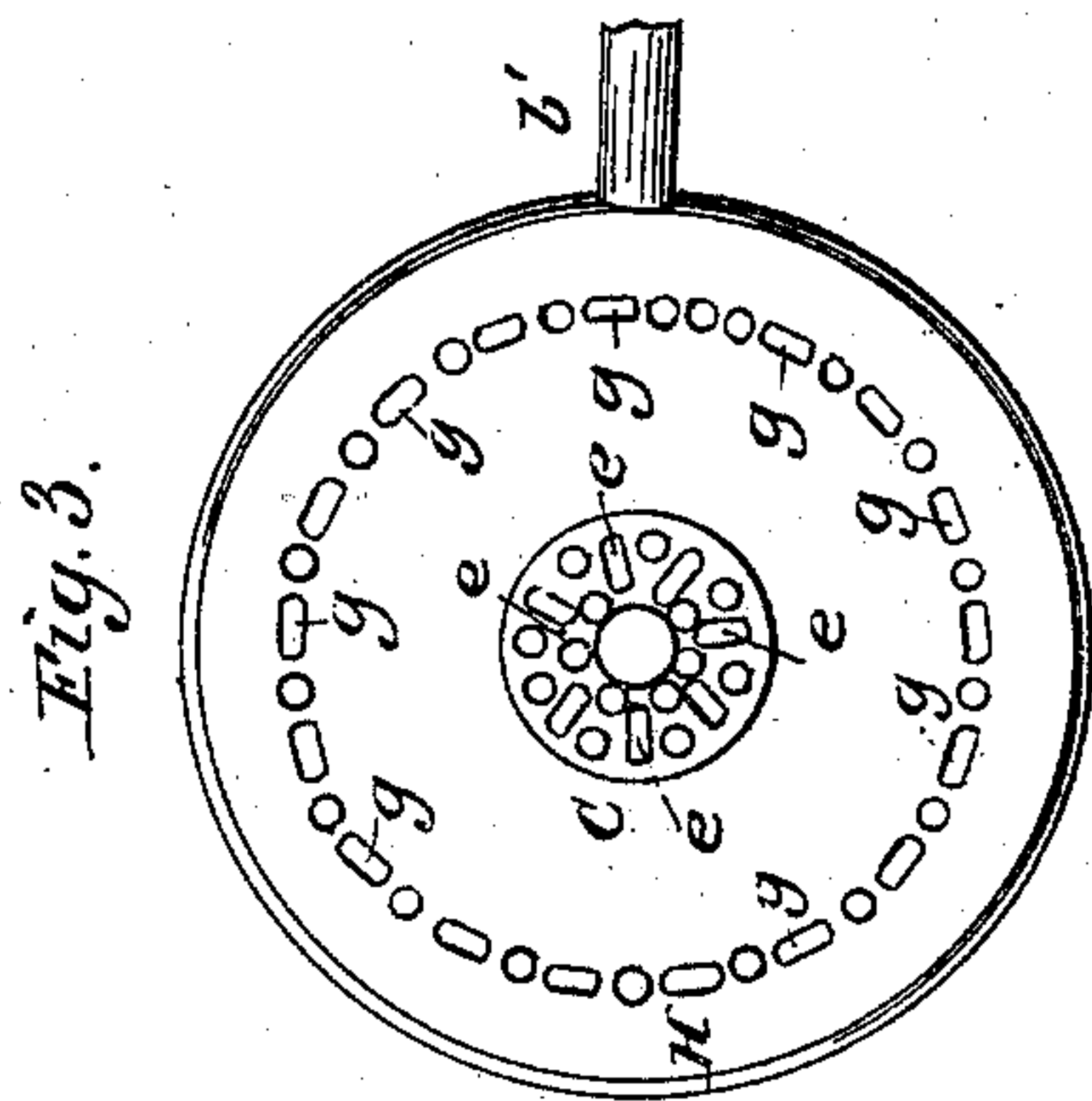


H. WHITTINGHAM.

Hot Air Furnace.

No. 57,028.

Patented Aug. 7, 1866.



Witnesses:
Jas. A. Service
J. M. Conington

Inventor:
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per
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UNITED STATES PATENT OFFICE.

HARRY WHITTINGHAM, OF NEW YORK, N. Y.

HOT-AIR FURNACE.

Specification forming part of Letters Patent No. 57,028, dated August 7, 1866.

To all whom it may concern:

Be it known that I, HARRY WHITTINGHAM, of the city, county, and State of New York, have invented a new and useful Improvement in Hot-Air Stoves and Furnaces; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a horizontal section of this invention, taken in the plane indicated by the line *x x*, Fig. 2. Fig. 2 is a central vertical section of the same. Fig. 3 is a plan or top view of the same.

Similar letters of reference indicate like parts.

This invention relates to a hot-air stove or furnace which is provided with a central air-chamber which connects, through two sets of pipes, one below and one above, with the air-spaces, to which the cold external air has access through suitable apertures in the bottom plate, in such a manner that a large quantity of air is made to circulate in the interior of the central air-chamber and the heating of the air is facilitated. The air-spaces alternate with annular smoke-chambers in such a manner that the heated products of combustion are compelled to circulate all round said air-chambers before they are permitted to escape, and all the heat, or nearly so, is utilized. An annular head or chamber in the upper part of the outer smoke-chamber, where the same communicates with the escape-pipe, serves to equalize the heat and prevents the heated gases from accumulating or concentrating on that side of the stove or furnace from which emanates the escape-pipe.

A represents the fire-pot of my stove or furnace, to which the fuel is introduced through the throat B.

The heated products of combustion on rising from the fire in the fire-pot come in contact with the central air-chamber, which is supplied with air through pipes *a* below, and the circulation of the air in the same is promoted by an additional set of pipes, *b*, emanating from the upper part.

The central air-chamber, C, is surrounded by the smoke-chamber D, and the smoke, af-

ter passing through this smoke-chamber and over the annular air-chamber E, enters the smoke-chamber F, which surrounds the air-chamber E, and is again surrounded by a second air-chamber, G. From the smoke-chamber F the smoke passes under the bottom of the air-chamber G to the last or outer smoke-chamber, H, from which it escapes through the pipe *b'*.

The air-chamber E is open at the bottom, and communicates, through apertures *c* in the bottom plate of the stove or furnace, with the external atmosphere, whereby the cold air has free access to said air-chamber and also to the central air-chamber, C, which communicates with the air-chamber E through the pipes *a b*, as previously stated.

The air, after being heated in the central air-chamber, escapes, through apertures *e* in the top of said air-chamber, into the room, or into the air-discharge pipes if the stove is converted in a furnace by surrounding it with a suitable jacket.

The air-chamber G communicates with the external air through pipes *f*, which extend through the outer smoke-chamber, H, and in said air-chamber, which is in contact on all sides with the heated products of combustion, the air is highly heated, and the heated air escapes, through apertures *g*, into the room or into the hot-air discharge-pipes, if the stove is used as a furnace.

The outer shell of the smoke-chamber H is provided with a large bead or annular chamber, *h*, from which emanates the escape-pipe *b*. Without this annular chamber the smoke would have a tendency to concentrate on that side from which emanates the escape-pipe, and the stove would not be heated uniformly; but by the annular chamber *h* the smoke is caused to circulate clear round through the several smoke-chambers, and an even and uniform heat is effected.

This stove or furnace may be made round, square, oval, or polygonal, and it can be used equally well as a stove or as a furnace, no change being required but the addition of an external jacket with suitable hot-air discharge-pipes.

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

1. The central air-chamber, C, with pipes *a*

b, in combination with the fire-pot A and annular air-chamber, F, constructed and operating substantially as and for the purpose set forth.

2. The arrangement of a series of annular smoke-chambers, D F H, with a series of air-chambers, C E G, fire-pot A, and escape-pipe *b'*, all constructed and operating substantially as and for the purpose set forth.

3. The annular bead or chamber *h*, in combination with the escape-pipe *b'* and with the smoke-chamber H, constructed and operating substantially as and for the purpose described.

HARRY WHITTINGHAM.

Witnesses:

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