

(No Model.)

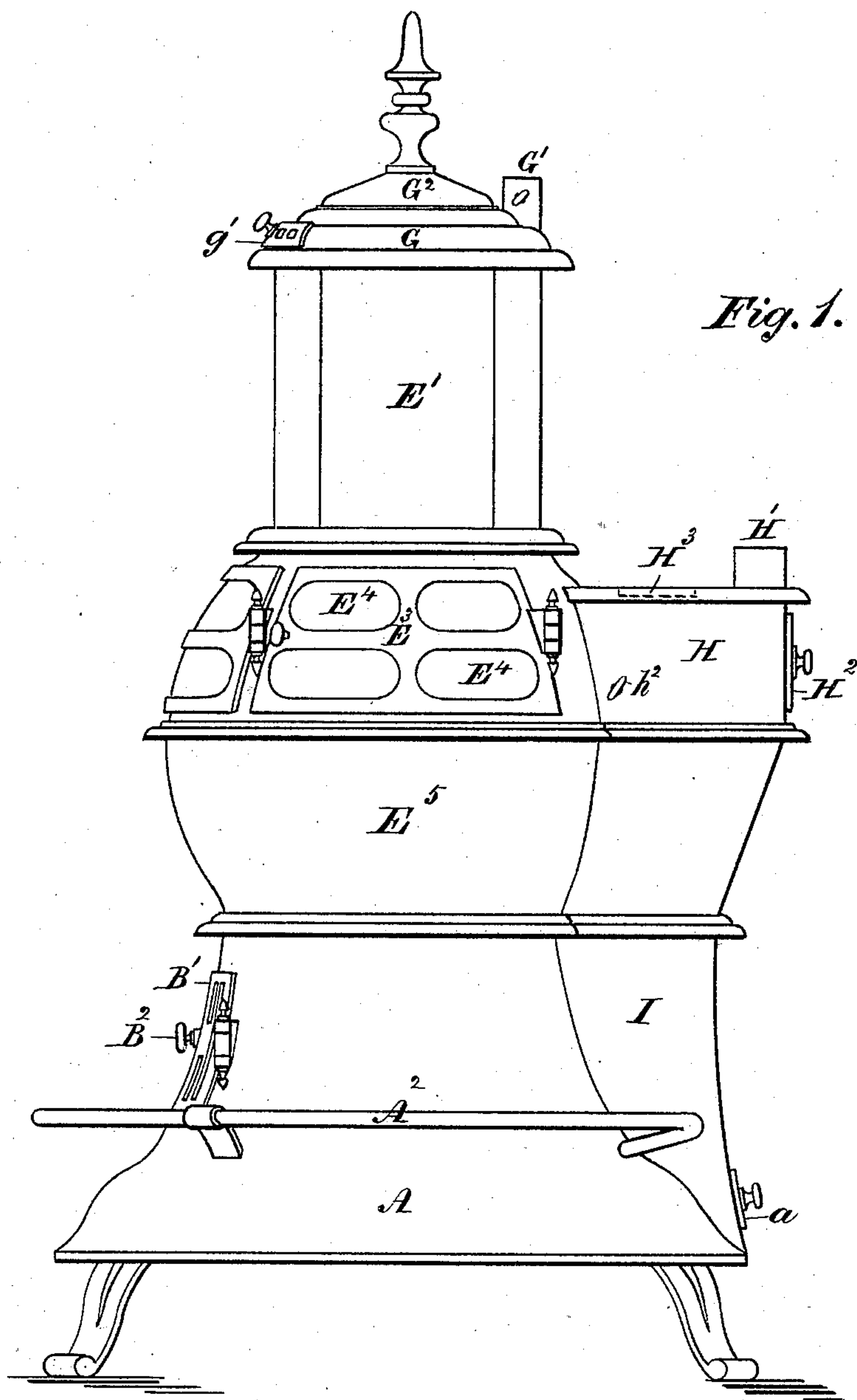
5 Sheets—Sheet 1.

P. H. SIMS & P. HOHMEIER.

HOT AIR STOVE.

No. 316,493.

Patented Apr. 28, 1885.



Witnesses:
John Grist
P. P. King

Inventors:
P. H. Sims
P. Hohmeier
By Henry Grist
Att'y.

(No Model.)

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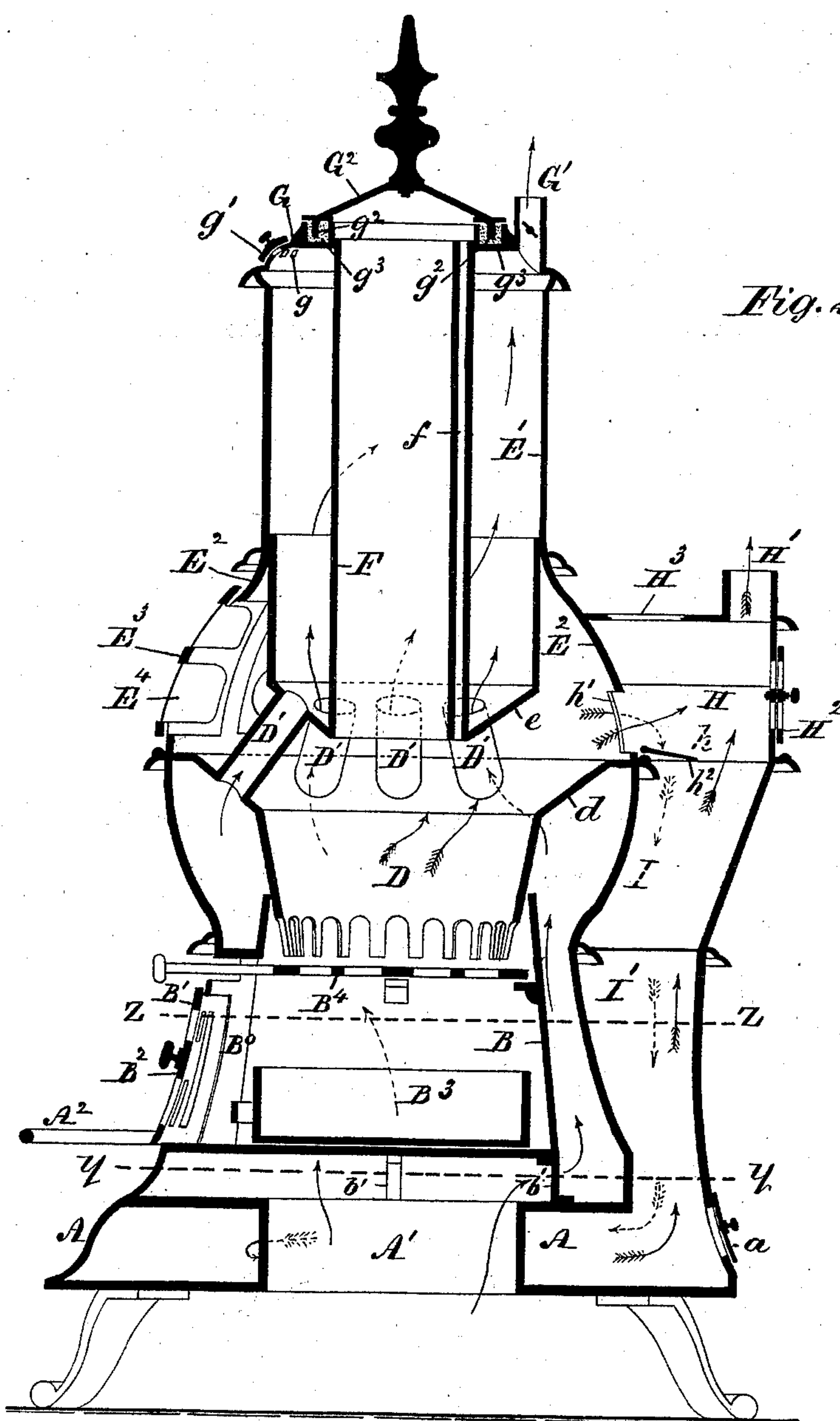


Fig. 2.

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(No Model.)

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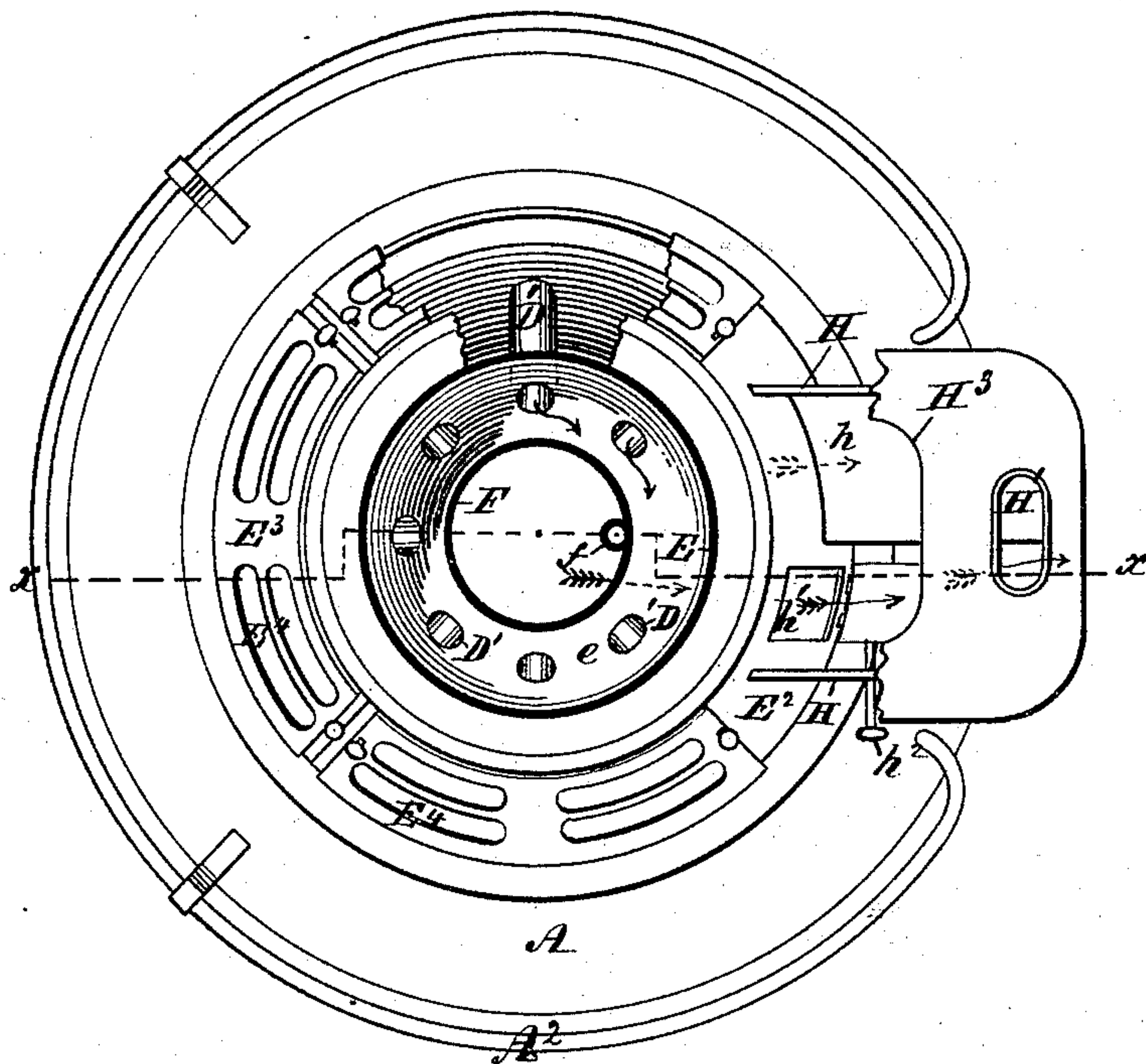


Fig. 3.

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(No Model.)

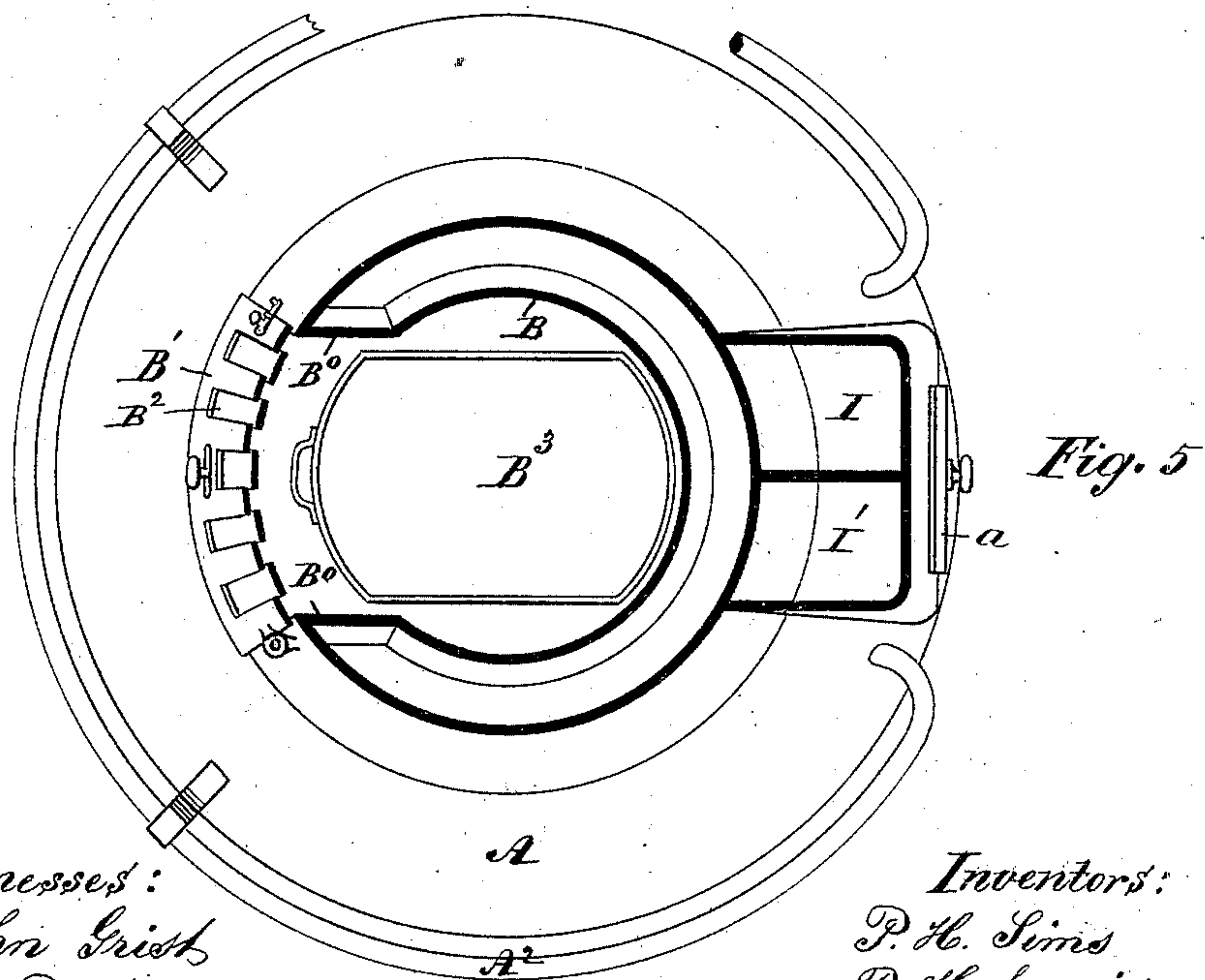
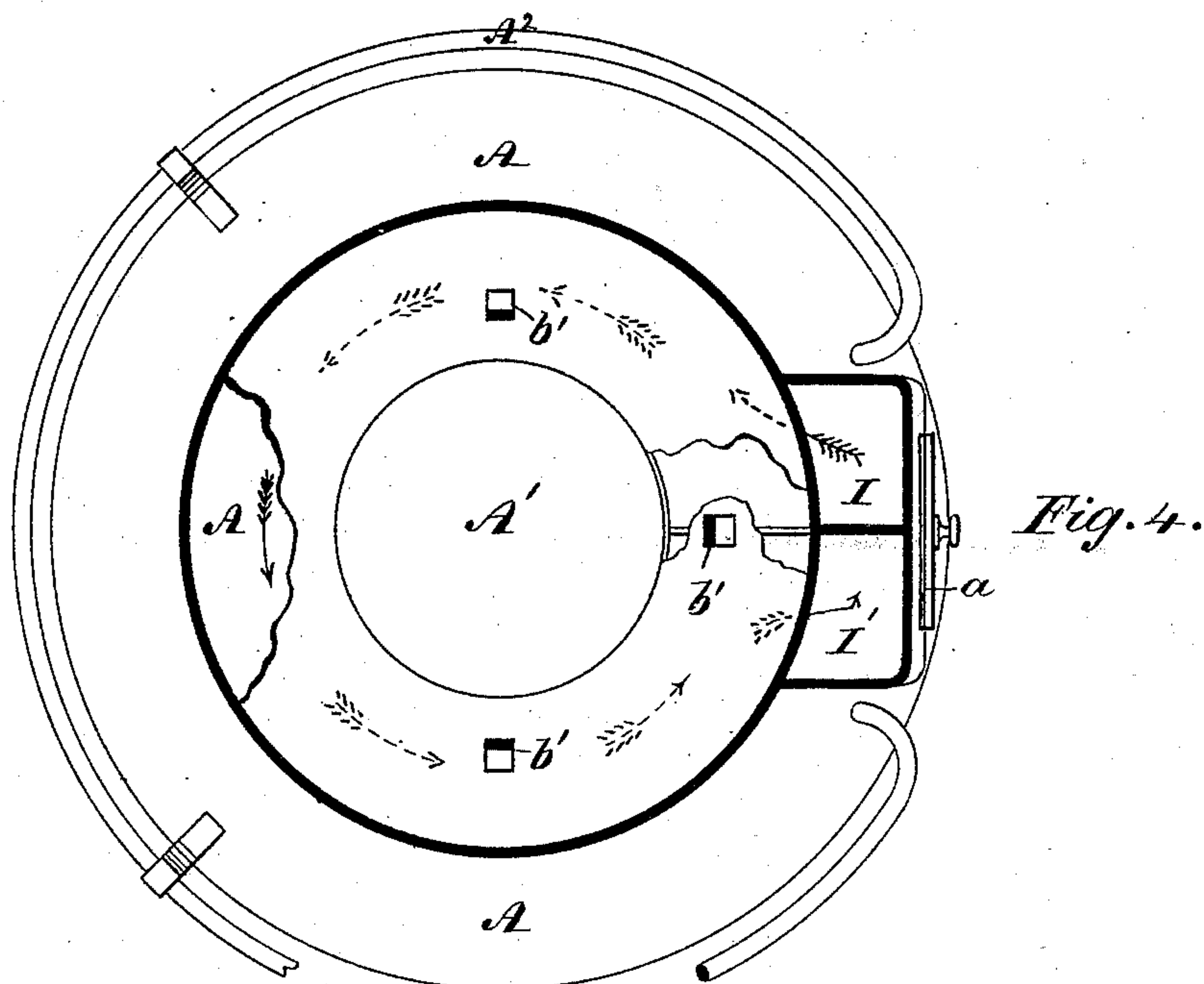
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Witnesses:
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(No Model.)

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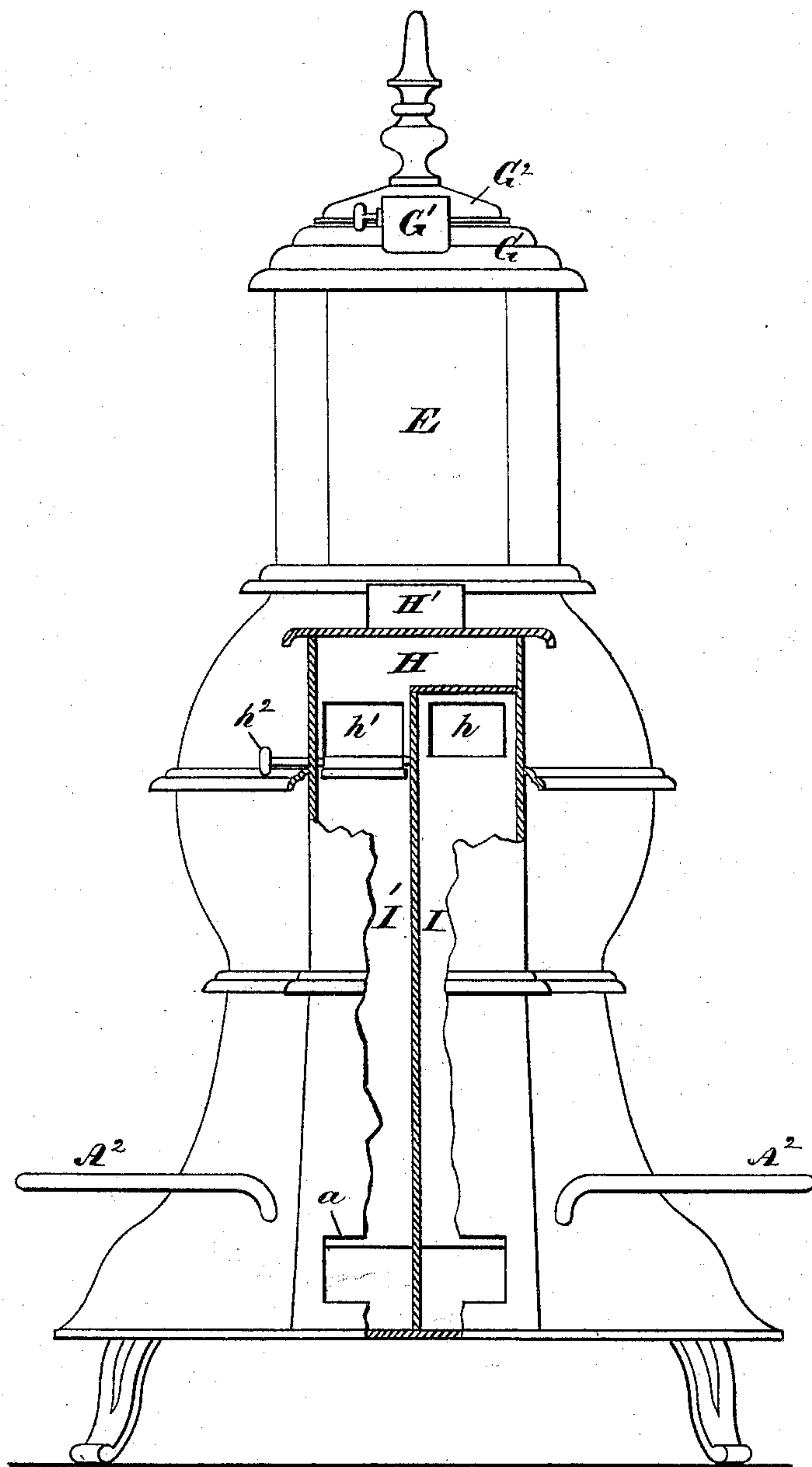
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Fig. 6.



Witnesses:
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UNITED STATES PATENT OFFICE.

PETER HARVEY SIMS AND PHILIP HOHMEIER, OF WATERLOO, COUNTY OF WATERLOO, ONTARIO, CANADA.

HOT-AIR STOVE.

SPECIFICATION forming part of Letters Patent No. 316,493, dated April 28, 1885.

Application filed June 2, 1884. (No model.)

To all whom it may concern:

Be it known that we, PETER HARVEY SIMS and PHILIP HOHMEIER, both of Waterloo, in the County of Waterloo, Province of Ontario, Canada, have invented new and useful Improvements in Hot Air Stoves; and we do hereby declare the following to be a full, clear, and exact description of the same.

Our invention relates to self-feeding hot-air stoves in which coal is used as fuel; and has for its object the construction of a stove which shall utilize the products of combustion to better advantage than has hitherto been done, and at the same time produce a stove which can be easily managed.

Figure 1 is a side elevation of our improved stove. Fig. 2 is a vertical section of the same on line *x x* of Fig. 3. Fig. 3 is a top view having parts broken out to show the construction. Fig. 4 is a horizontal section on the line *y y* of Fig. 2, parts being broken out. Fig. 5 is a horizontal section on the line *z z*, Fig. 2; and Fig. 6 is a rear elevation showing diving and return flues, part broken away, and smoke-box in section.

A is the base of the stove, consisting of a circular casing having a central opening, A', and a partition at the rear, so as to form a circular horizontal flue. A² is a foot-rail secured to the base.

B is a boxing containing the grate and forming the ash-fall. It consists of a cone tapering upward, and having a part of its front, B⁰, elongated to join the external main casing, and closed by a door, B', provided with regulator-slide B². B³ is the ash-pan, and B⁴ the circular grate with shaker. This cone B has its bottom plate placed level with and secured at the front to the top of the base, the bottom plate, *b*, being placed centrally above the opening A', which latter is slightly smaller in diameter. The bottom plate, *b*, is placed higher than the top plate of the base, and is supported at the rear by brackets *b'*.

D is the fire-pot, consisting of an inverted cone, the lower solid part of which forms a joint with the upper edge of the cone B, the one overlapping the other. The fire-pot has at its upper edge a flaring conical flange, *d*, in

which a number of inclined and radially-disposed air-tubes, D', are inserted, which are joined at their upper end to a smaller flaring flange or cone, *e*. The lower inner edge of the cone *e* supports the feeding-tube F, provided with gas-tube *f*, and the outer and upper edge of the cone *e* supports a short cylinder, E, which is overlapped by the lower end of the upper external cylinder, E', making joint therewith, E² being the downwardly and outwardly extended external casing provided with doors E³, having mica lights E⁴, and resting upon the upper edge of the flange *d*, thus inclosing the fire-space above the tubes D'.

E⁵ is another part of the external casing, inclosing the fire-pot D and grate-cone B, and which part E⁵ may form part of or be attached to the upper external edge of the cone *d*, its lower edge joining the base.

At the rear of the casing E², at about the level of the air-tubes D', a boxing, H, is placed, containing a flue, *h*, opening into the down-flue I, which leads into the base A, where, after passing around, the smoke returns through the flue I' to the boxing H and passes out through pipe H'. By the side of the flue *h* is an opening, *h'*, provided with a damper, *h*², which may be opened and allow the draft to pass direct into the boxing H without circulating, as previously described.

The rear of the box H is furnished with a check-regulator, H², and at the top an opening, H³, for heating a kettle is provided and furnished with a suitable cover. An opening, *a*, is also made in the flues I I' at the base to facilitate the cleaning of the same.

The feed-tube F and the external cylinder, E', are connected by a crown-plate, G, provided with tubular air-outlets G' and smaller outlets *g g*, furnished with slide *g'*, to regulate the flow, also a circular groove, *g*³, filled with fine sand, to make a gas-tight joint.

The top of the stove is provided with an annular groove, *g*³, around the feed-opening F, inclosed by a cover, G², having a flange, *g*², to dip into the groove *g*³, which, when filled with sand, prevents escape of gas.

It is to be remarked that the cold air will enter through the circular opening A' in the

base and pass up around the grate-cone and fire-pot, the air thus being heated and rarefied and keeping the parts from overheating, passing thence through the air-pipes D' into the air-space between the feed-tube F and cylinders E E', where it is further heated before passing out through one or more of the openings provided in the crown-plate G. In the drawings the course of the air is indicated by plain arrows; that of the draft or products of combustion by feathered arrows. The latter pass from the space over the fire-pot, through the flue h, down the flue I, circulate through the base, and pass up through the flue I', placed alongside the flue I, into the box H, and out through the pipe H'; or they may pass direct through the opening h' into the box H and out at H' by opening the damper h². The admission of air is regulated by the slides B² in the fire-door B', while the draft may be further checked by opening the regulator H².

We are aware that a stove having an opening in the base for the admission of cold air and a smoke-passage within the base around such opening is shown in a patent of Germany, No. 12,524, granted to Löndholdt, June 29, 1880; and we are also aware of United

States Patent No. 133,608, wherein the cold air passes from around the fire-box into an annular hot-air chamber surrounding the feed-tube, from whence it may escape or be conducted to an upper room, and we do not claim such features, broadly.

We claim as our invention—

In a self-feeding hot-air stove, the combination of the base A, having central air-passage, A', and concentric flue around the air-passage A' within the base A, ash-box B, fire-pot D, having flange d, the series of radially-arranged air-tubes D', feeder F, and external casing, E E' E² E³, whereby cold air passes up through the opening in the base of the stove, and is heated by contact with the ash-box and fire-pot, and ascends through the series of tubes into the annular space between the feeder and casting and out at the top, as set forth.

Signed at Waterloo, this 12th day of May, 1884.

PETER HARVEY SIMS.
PHILIP HOHMEIER.

In presence of—

F. COLQUHOUN,
JOHN H. MUELLER.