

(No Model.)

F. TYLEE.
HEATING FURNACE.

No. 274,676.

Patented Mar. 27, 1883.

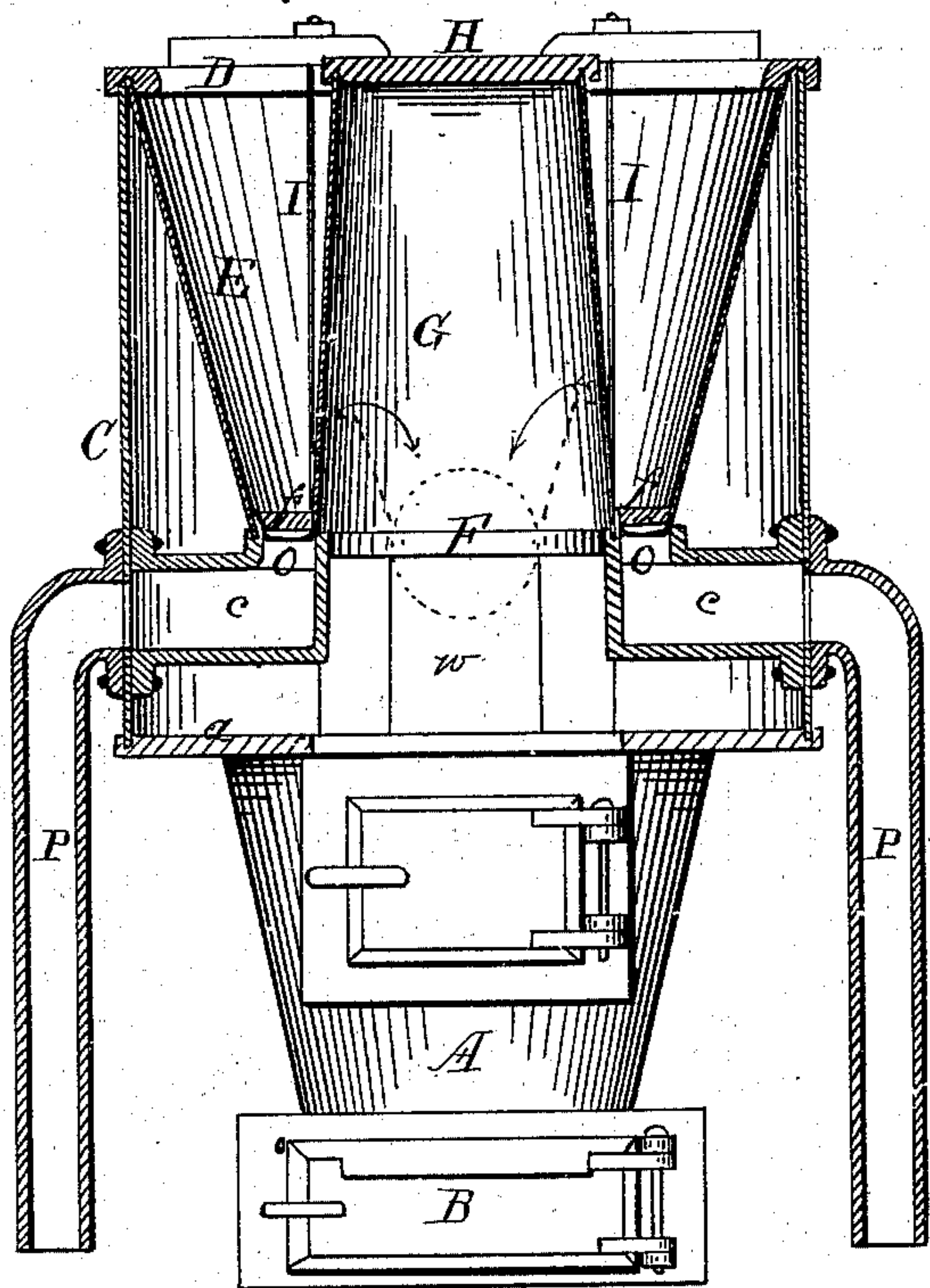


Fig. 2.

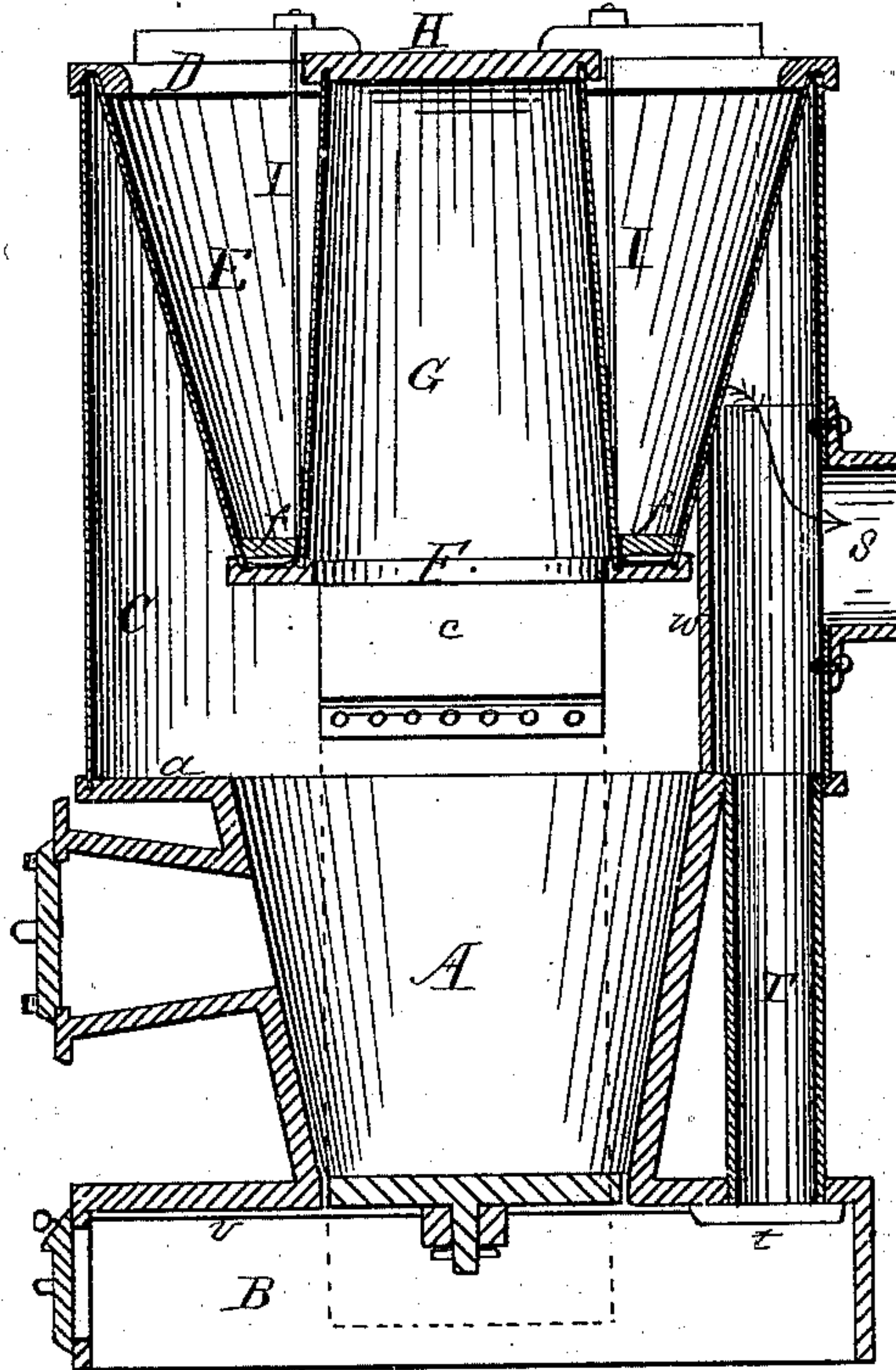


Fig. 3.

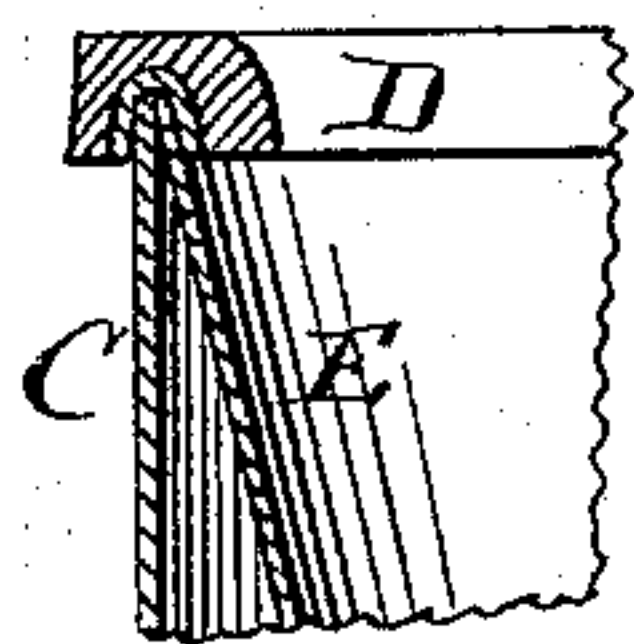


Fig. 6.

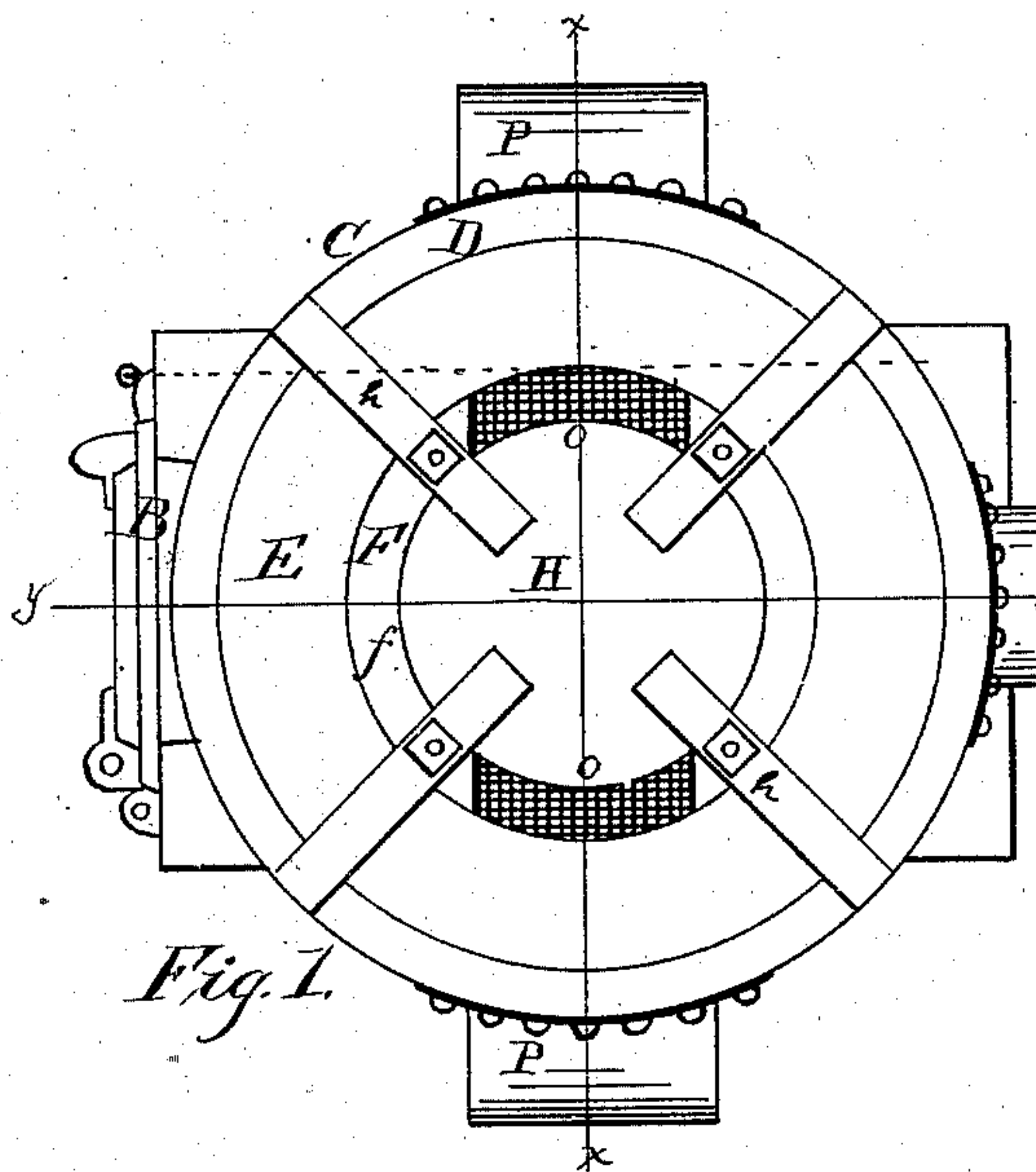


Fig. 1.

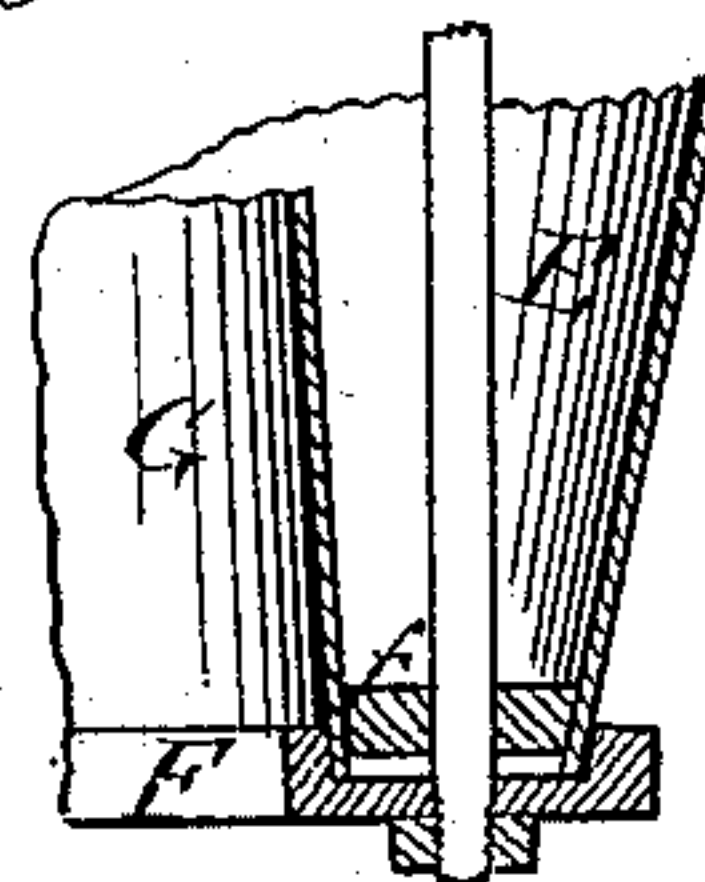


Fig. 5.

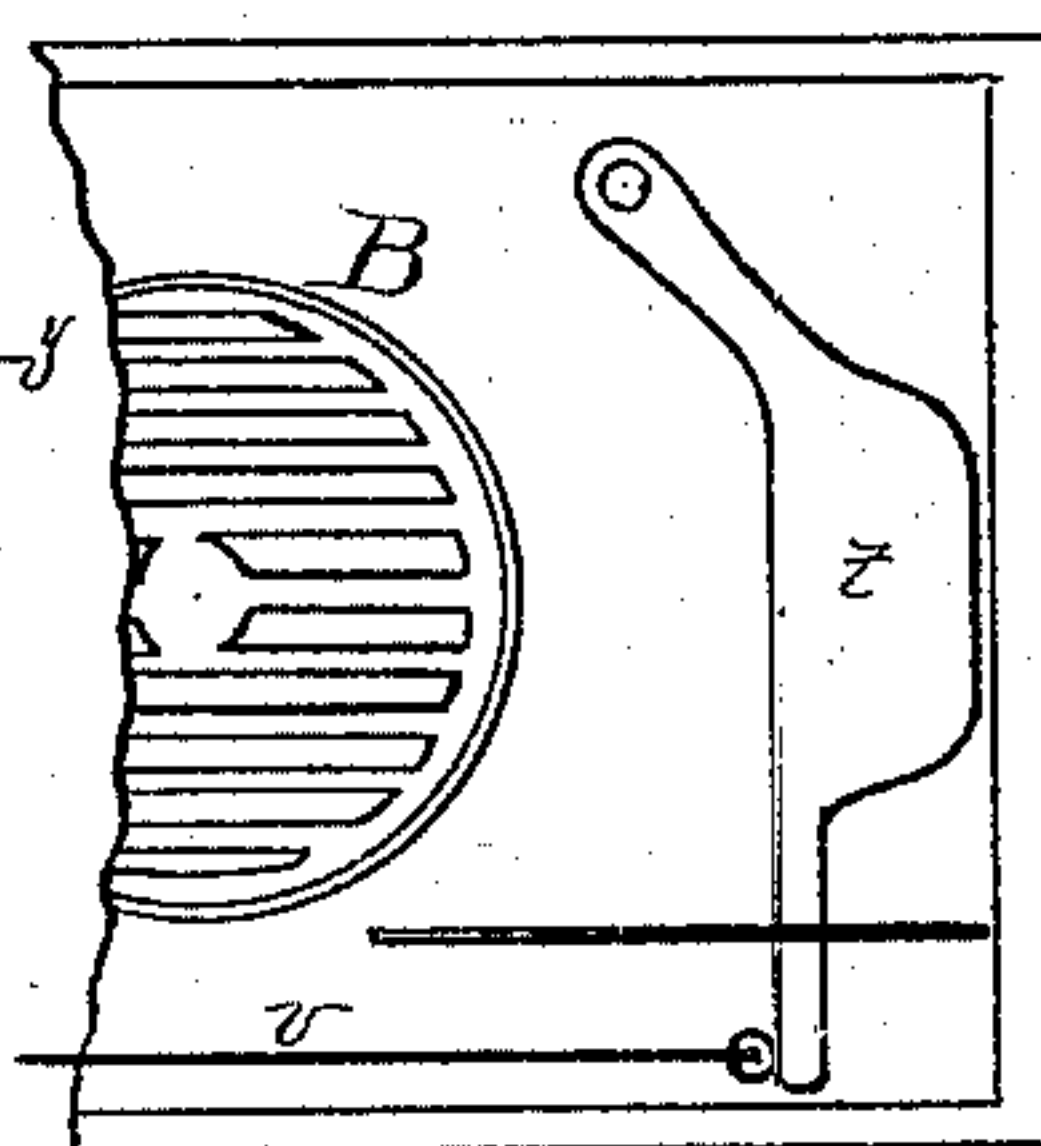


Fig. 4.

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UNITED STATES PATENT OFFICE.

FELIX TYLEE, OF CLEVELAND, OHIO.

HEATING-FURNACE.

SPECIFICATION forming part of Letters Patent No. 274,676, dated March 27, 1883.

Application filed October 5, 1882. (No model.)

To all whom it may concern:

Be it known that I, FELIX TYLEE, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful

Improvements in Heating-Furnaces, of which the following is a specification.

The nature and objects of this invention will fully appear from the subjoined description, when considered in connection with the accompanying drawings, in which—

Figure 1 is a top view. Fig. 2 is a front elevation, partly in section on line *xx* of Fig. 1. Fig. 3 is a vertical section in line *yy* of Fig. 1. Fig. 4 is an underside view of the ash-pit, showing a damper for opening a direct communication with the chimney. Fig. 5 is a detached sectional view, showing manner of securing air-tight joint at lower end of inner cylinders. Fig. 6 is a like view, showing manner of securing an air-tight joint at top end of outer cylinder.

A is a fire-pot supplied with the usual grate, and is supported over an ash pit or box in the ordinary manner, and has also a feed-opening and door in front. Above said fire-pot is arranged a set of sheet-metal cylinders, of peculiar construction, for the production of heated air and its distribution, which comprise and embody my improvement, as follows: The top of said fire-pot is provided with a wide projecting annular flange or ring, *a*, which supports the outer cylinder, C, in which is contained the other mechanism. This cylinder C is of suitable height for the purposes for which it is intended, and is crowned with a ring, D, having a groove fitting over and resting upon the edge of said cylinder. Within said cylinder C is placed a tapering cylinder, E, of the same diameter at the top as the outer cylinder, C, and the two are united at their top edges by the same ring, D. The lower end of said cylinder E, which is about three-fourths the length of cylinder C, is reduced by the taper to about three-fifths diameter of top, and is closed by a wide ring, F, which ring also supports a third cylinder, G, the top of which is slightly smaller in diameter than the bottom, but is of the same length as the cylinder E. The top end of said inner cylinder, G, is closed permanently by a cap, H, having four radial arms, *h h*, the outer ends of which rest upon the top of the ring D.

The cylinders E and G are secured firmly together by long bolts I I, which pass through the arms *h* and ring F. The joint at the top of outer cylinder, C, and cylinder E is made air-tight to prevent escape of gases by means of a welt of copper or other suitable soft metal placed over their united edges and forcibly held thereon by the ring D. The lower joint is also made air-tight by means of an annular plate, *f*, forcibly held down between the lower ends of the two cylinders E and G by the bolts I I, whereby the said edges of the cylinders are crowded tightly against the flanges of the said ring F, leaving a narrow space the width of said plate *f* between said two cylinders E and G. These three cylinders form three chambers, the outer and inner chambers being combustion-chambers, and are open to the fire-pot below them, while the intermediate chamber is an air-heating chamber. From two opposite sides of the outer cylinder, C, are attached cold-air pipes P P, depending nearly to the floor, and are open at the bottom for the admission of cold air. At their union with the cylinder C they are connected with the aforesaid air-chamber within the cylinder E by sub-chambers *c c*, which are located at the base of the said chamber E and in the lower portion of the combustion-chamber and partly over the fire-pot. Consequently the air which passes through them must become quickly and thoroughly heated. The aforesaid ring F and plate *f* are provided with openings O O for communication between the chamber E and sub-chambers *c c*. On the rear side of the cylinder C is an opening and collar, *s*, for attaching a pipe for connection with a chimney to carry off smoke. The space in the chamber C next to the hole *s* is divided by a partition-wall, *w*, up a little above the top of said hole, to divert the flames upward and over said wall for the purpose of retaining and distributing the flames before their escape to the chimney, as indicated by the arrows. The use of the inner chamber, G, is for the consumption of the smoke and gases, which is performed thus: The smoke and gases which pass upward into said chamber can find no escape and are returned toward the fire and nearly or quite consumed. Behind the fire-pot is placed a pipe, T, connecting the ash-box B with the chamber in-

closed by cylinder C behind the partition *w*, the lower end of which pipe is closed by a damper, *t*, which can be operated by a rod, *v*, extending outward at the front of the said box. 5 The object of this pipe and damper is to supply a means for turning the draft from the fire-pot to the chimney direct when desired to cool down the fire.

This furnace is to be inclosed in a suitable casing of metal or brick, the heated air being conveyed by suitable pipes from the chamber E.

Having described my invention, I claim—

1. The combination, with the fire-pot A, having wide flange *a*, of the cylinder C, tapering cylinder E, and cylinder G, the cylinders C and E being united at their top by ring D, and the cylinders E and G secured by ring F and annular plate *f*, and the top of cylinder G being closed by cap H, having arms *h h*, said cap and rings being secured firmly together by the bolts I I, the chamber inclosed by cylinder C having sub-chambers *cc*, connecting with cham-

ber E by openings O O through ring F and plate *f*, the said sub-chambers communicating with the outer air through the depending pipes P P, said chamber C also having the wall *w*, all constructed and operating as and for the purpose specified. 25

2. The joint consisting of the ring D, having annular groove, the welt covering the top edges of the cylinders C and E, as shown and described. 30

3. The joint consisting of the ring F and plate *f*, uniting the lower edges of the cylinders E, in the manner and for the purpose specified. 35

4. The combination, with the ash-pit B and chamber C, of the pipe T, provided with the damper *t*, operated by the rod *v*, as and for the purpose specified.

FELIX TYLEE.

Witnesses:

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