

M. B. DYOTT.  
Hot-Air Furnace.

No. 9,966.

Patented Aug. 30, 1853.

Fig: 1.

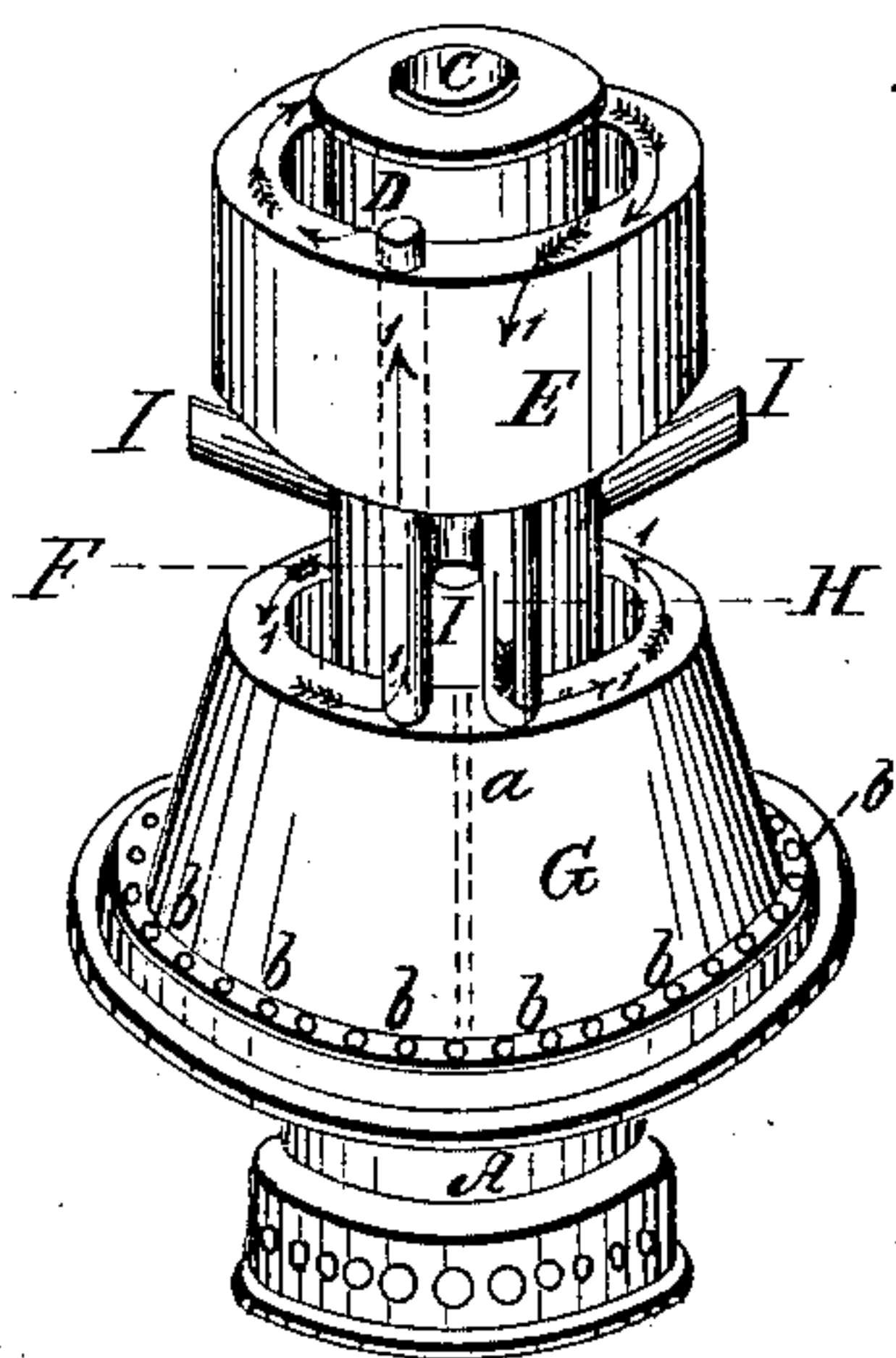


Fig: 2.

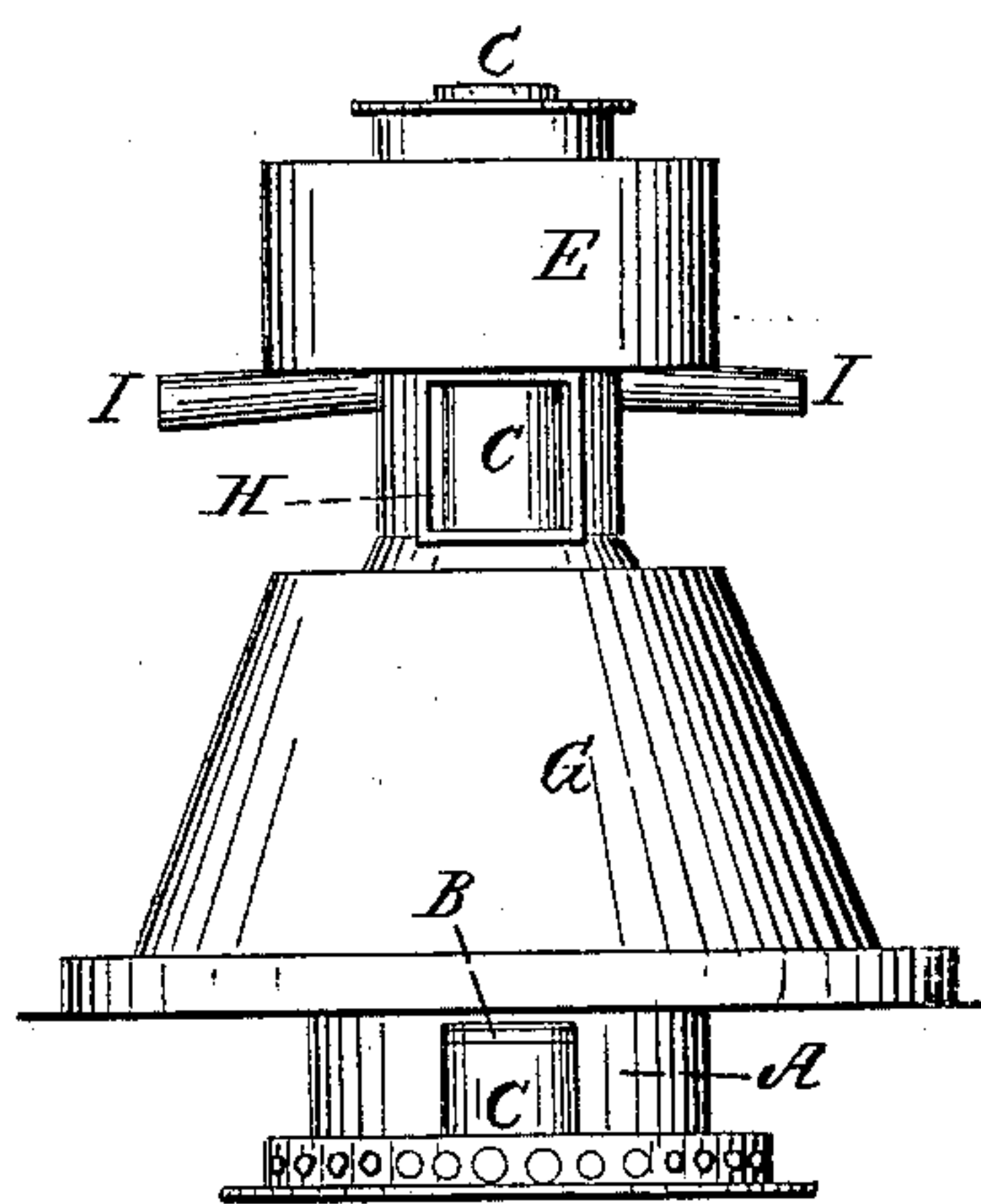
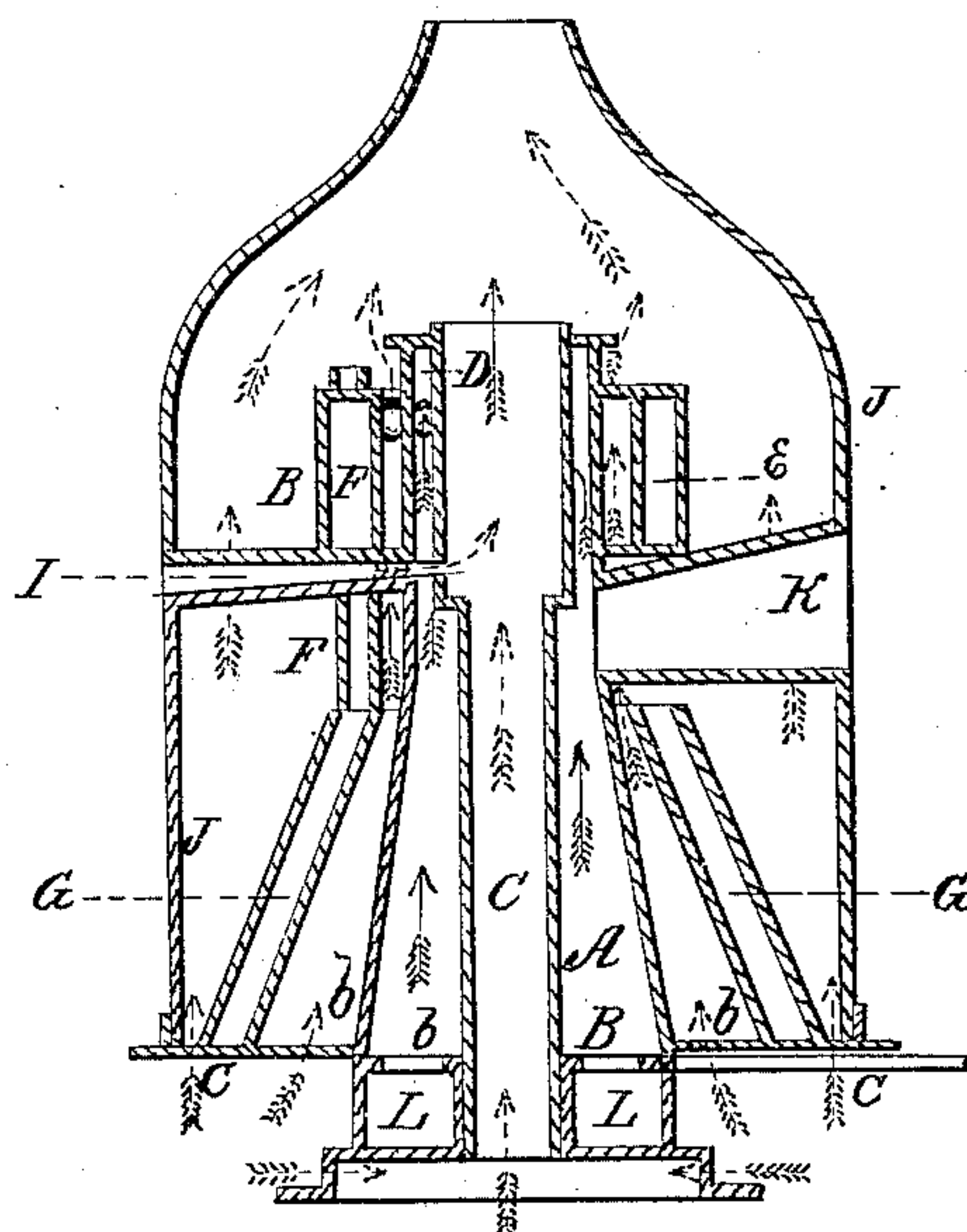


Fig: 3.



# UNITED STATES PATENT OFFICE.

M. B. DYOTT, OF PHILADELPHIA, PENNSYLVANIA.

## HOT-AIR FURNACE.

Specification of Letters Patent No. 9,966, dated August 30, 1853.

*To all whom it may concern:*

Be it known that I, M. B. DYOTT, of the city and county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Hot-Air Furnaces; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1, is a perspective view of the back of the furnace; the external shell or covering being removed. Fig. 2, is a front elevation of the same. Fig. 3, is a vertical section of the furnace and external shell or covering; the line of section being taken through the center.

Similar letters of reference indicate corresponding parts, in each of the several figures.

This invention relates to certain improvements in hot-air furnaces, and consists, in the combination of the inner cylinder or flue and the drums which encircle the fire-chamber, arranged as will be hereinafter described.

To enable those skilled in the art to make and use my invention, I will proceed to describe its construction, and the manner in which it operates.

A, represents the fire-chamber, which is of conical shape to a certain height; and, B, is the fire-grate, at the lower part of the fire chamber.

C, is a cylinder or flue, which extends vertically through the center of the fire-chamber; the fire-chamber being closed at the top around the cylinder or flue, C.

D, Figs. 1, and 3 is a passage, leading from the fire-chamber into a drum, E, which surrounds the upper or cylindrical part of the fire-chamber; a space being between the drum, E, and the fire-chamber.

F, is a pipe or tube, which extends vertically through the drum, E, and serves as a partition to cut off the communication all around the interior of the drum. This pipe or tube communicates with a drum, G, some distance below the drum, E. The drum, G, it will be seen, is of conical shape, corresponding to the shape of the lower part of the fire-chamber. The drum, G, also has a partition, (a); see dotted lines in Fig. 1.

H, is a pipe or tube, which communicates with the drum, G, on the side of the parti-

tion, (a), opposite to the pipe or tube, F; the pipe or tube, H, also communicates with the drum, E; see Fig. 1.

I, are pipes or tubes, which pass from the upper part of the inner cylinder or flue, C, to the outer side of the external shell or covering, J. This shell, J, is seen in Fig. 3; it completely covers the furnace.

K, is the door of the fire-chamber, through which door, fuel is admitted into the fire-chamber.

L, is the ash-pit, underneath the fire grate as shown in Fig. 3.

Operation: The smoke and heat from the fire-chamber pass upward and through the pipe or passage, D, into the drum, E; and, owing to the pipe or tube, F, which serves as a partition in the drum, E, the smoke and heat pass in the direction, around the drum, E, as indicated by arrows, 1, in Fig. 1, and descend through the pipe or tube, H, into the drum, G, and, owing to the partition, (a), pass around the drum, G, and ascend through the pipe or tube, F, and may be carried off through the shell, at any desired point, by means of a pipe, (not represented). Cold air ascends upward, between the drum, G, and fire-chamber, A, through the apertures, (b), and passes around the fire-chamber, and upward between the drum, E, and fire-chamber. Cold air also passes upward, through the interior of the cylinder or flue, C; and also into the shell, J, through apertures, (c), at its bottom. Cold air also passes into the upper part of the internal cylinder or flue, C, through the pipes or tubes, I. The direction of the cold air that passes into the shell, J, inner cylinder, C, and into the space between the drum, G, and fire-chamber, A, is shown by dotted arrows in Fig. 3.

By the above arrangement, it will be seen that the cold air that passes into the space between the drums and fire-chamber, keeps the fire chamber from being burnt; and the air itself is, of course, heated by the fire. The internal cylinder or flue also supplies a current of warm air; and a great heating surface is exposed. The heat from the fire-chamber, passing around the drums, E, G, is prevented from passing off, and communicates heat to the air within the shell.

I do not confine myself to any particular shape or form of air-chamber or drums, whether conical, cylindrical, or otherwise.



I do not claim, separately, any of the devices or parts herein named; but

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

- 5 The combination of the internal cylinder or flue, C, with the drums, E, G, arranged in the manner described, by which combina-

tion a great amount of heating surface is exposed.

M. B. DYOTT.

Witnesses:

CHARLES D. FREEMAN,

W. W. ELY.