

J. SIDDONS.
Hot-Air Furnace.

No. 85,335.

Patented Dec. 29, 1868.

Fig. 1.

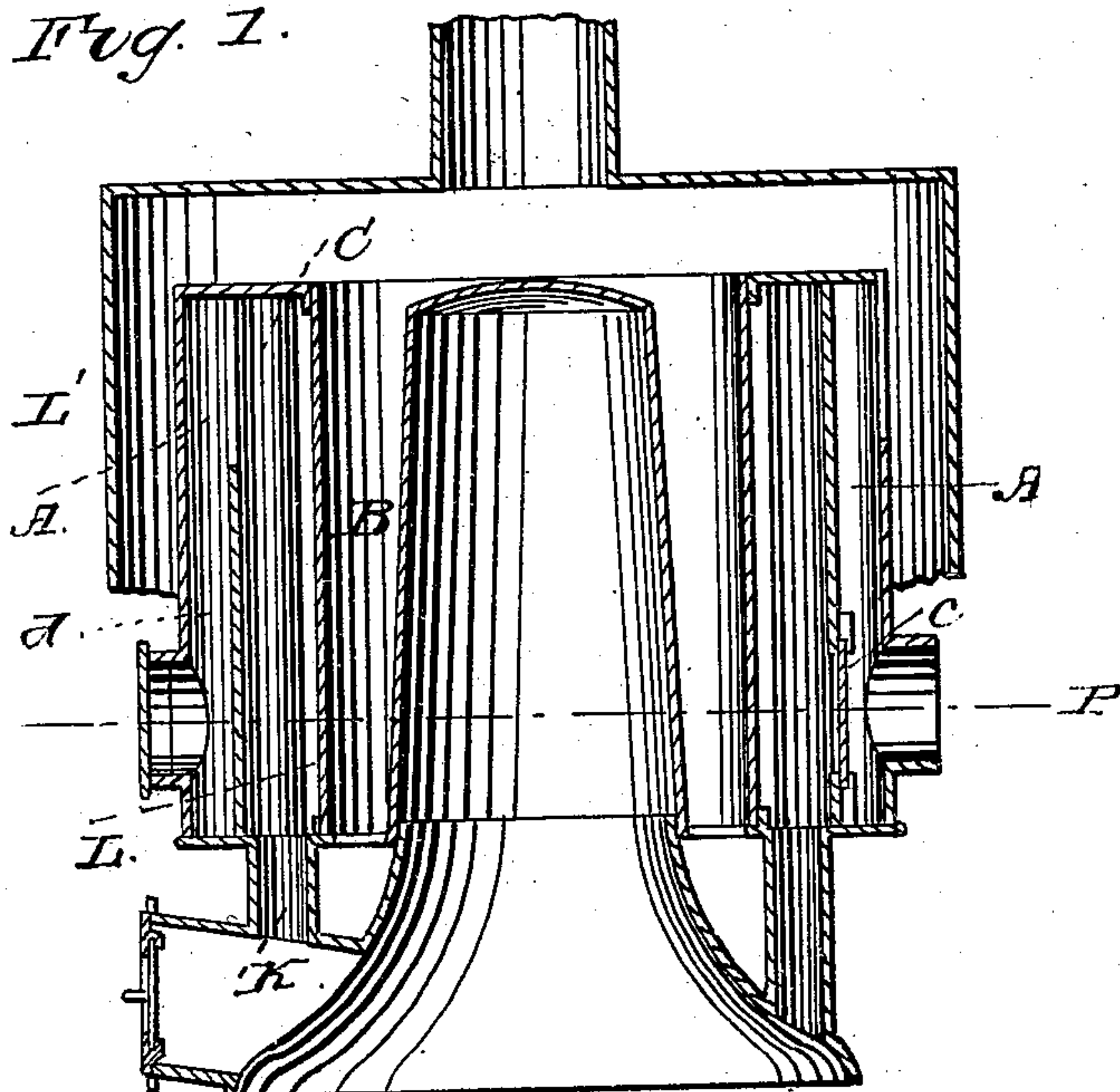


Fig. 2.

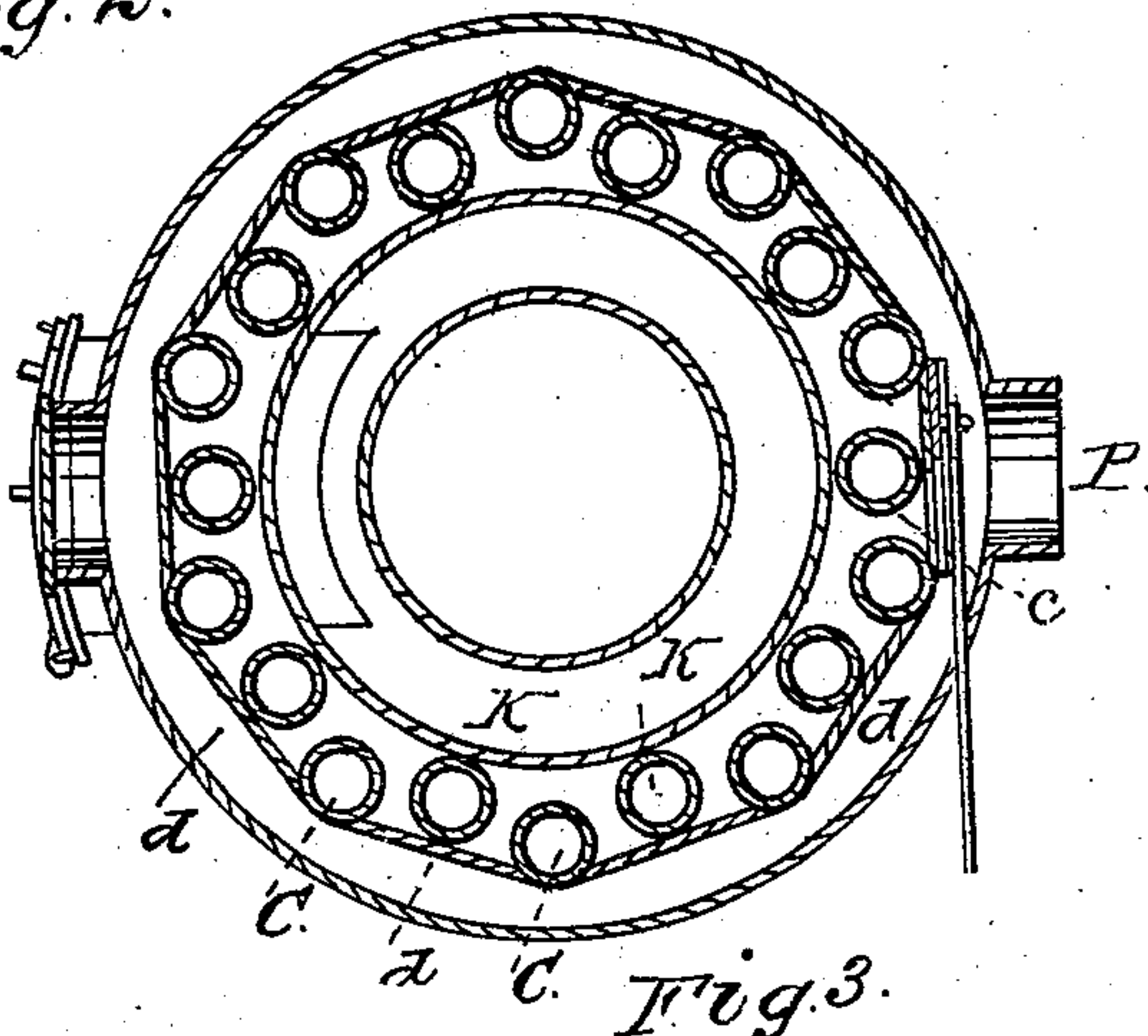
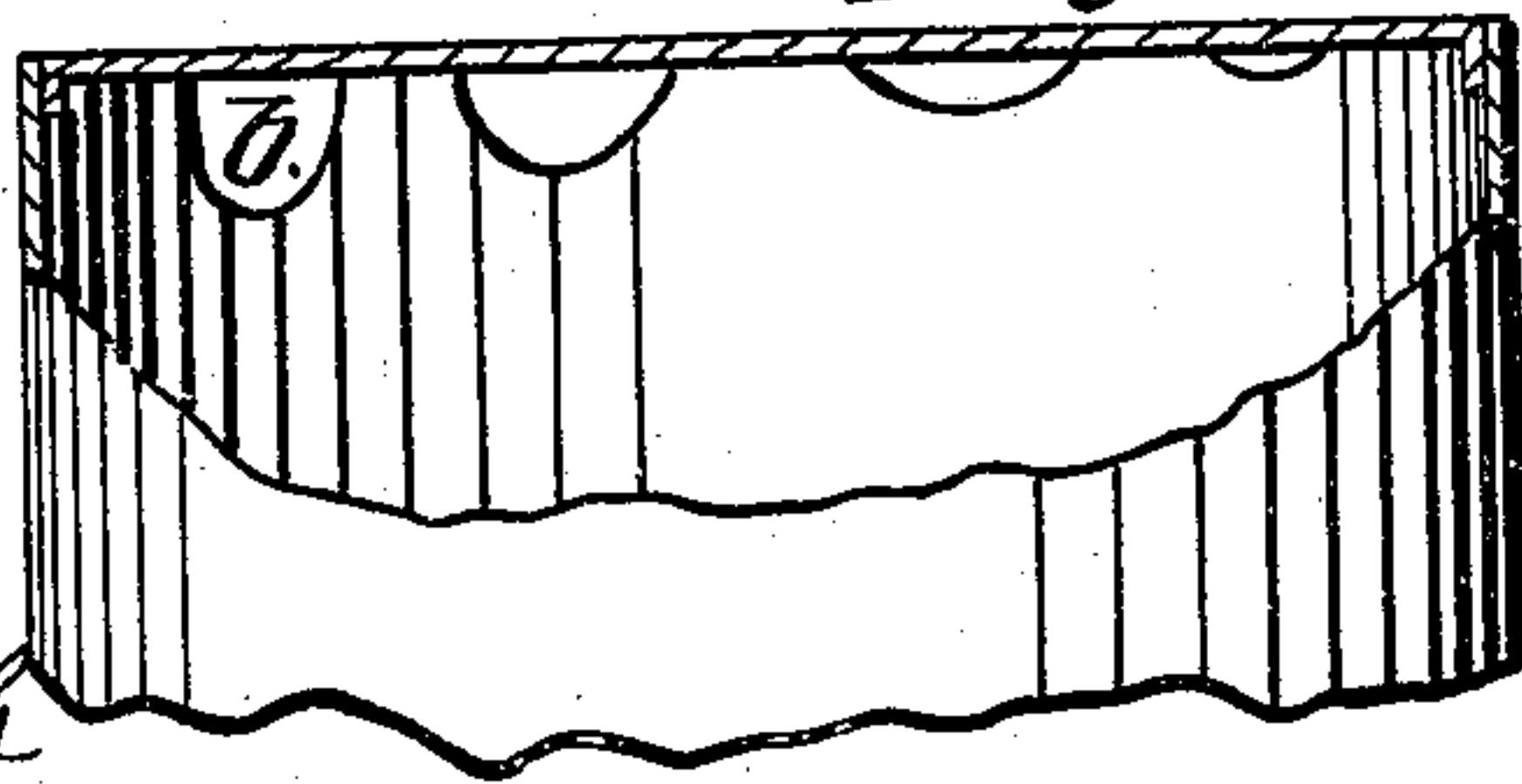


Fig. 3.



Witnesses

Ja^s Lorenzo

Wm^o S. Loughborough

Inventor

Jno Siddons



JOHN SIDDONS, OF ROCHESTER, NEW YORK.

Letters Patent No. 85,335, dated December 29, 1868; antedated December 15, 1868.

IMPROVEMENT IN HOT-AIR FURNACES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, JOHN SIDDONS, of the city of Rochester, in the State of New York, have invented a new and useful Improved Furnace; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing, making part of this specification, in which—

Figure 1 is a vertical section.

Figure 2 is a transverse section in the plane of red line in fig. 1.

Figure 3 is an elevation of a portion of the furnace with a portion of the outside shell B cut away, to show the graduated holes in the plates *d*.

The nature of this invention will be fully understood from the drawings and specifications.

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

In ordinary hot-air furnaces, composed of an inner and outer shell, B B', through which the air-flues C pass, and into which the caloric-flues K discharge, I find it desirable to form an extra chamber.

This I accomplish by putting connecting-plates, *d*, between the air-flues C, outside of the caloric-flues K.

The plates *d* (except those in the rear, and next to the exit-flues P) are provided with exit-ports *b*, graduated in such a manner that the ports in each successive plate are larger towards the front of the furnace.

By this means the heat is drawn to the front of the furnace in the chamber L, formed by the inside shell B and the plates *d*, and, passing through the ports *b* into the chamber formed by the plates *d* and outside shell B, it passes back to the exit-flue P. This flue is placed at the bottom and the rear of the outside chamber formed by the plates *d* and outside shell B.

The plate *d*, in front of the exit-flue P, has an opening, regulated in size by a damper, *e*, to allow a direct

exit for the caloric from the fire-pot to the exit-flue P, when desired.

L' represents a portion of an outside cover to the furnace, cut away, to show the lower part of it.

The operation is such that, fire being built in the furnace, (not shown in the drawings,) the caloric ascends, through the flues K, into the inner chamber L to its top, thence; through the exit-ports *b*, into the chamber formed by the plates *d* and outside shell B; thence into the exit-flue P.

By addition of the exit-chamber formed by the plates *d*, the caloric is detained longer around the air-flues C, thereby adding more heat to the air passing through them.

Each successive port *b*, towards the front of the furnace is made larger, so that the heat will not escape too rapidly near the rear of the furnace, where the draught is the strongest, and allows a larger exit where the draught is the least; whereas, in furnaces without the extra chamber formed by the plates *d*, the heat has a direct current to the exit-flue P, and the effect of a large portion is thereby lost.

The damper-hole in the rear is used when a fire is being built or too much heat is given forth.

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

1. The plates *d*, in combination with the air-flues C, for the purpose of adding an additional caloric-chamber to ordinary hot-air furnaces, as herein shown and described.

2. The plates *d*, having suitable openings at the top, the caloric-flues K, air-flues C, in combination with inner and outer shells B, acting conjointly, substantially as and for the purposes herein shown and described.

Witnesses:

JNO. SIDDONS.

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WM. S. LOUGHBOROUGH.